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An analytical study of teaching.

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AN ANALYTICAL STUDY OF
TEACHING IN NURSERY SCHOOL,
KINDERGARTEN, AND
FIRST GRADE

By
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W. E. B.



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CHAPTER I

ANALYTICAL STUDIES OF TEACHING

The fine art of teaching is so subtle a process that it does not yield readily to analysis. Its very subtlety, however, makes more desirable such an analysis as will aid observers to discriminate between strong and weak points in teaching procedures. The present study of teaching has resulted in an analysis of specific teaching acts. Such acts have been organized into a scale so that a competent observer can match the performance of any teacher in nursery school, kindergarten, or first grade with the samples given. By the use of this scale the strong and weak points in acts of teaching can be isolated.

The study was inspired by repeated observation of the fact that supervisors who make effective criticism on classroom visitation are compelled to select significant teaching acts in order to generalize about educational principles followed or violated by teachers whose work they seek to improve. These supervisors, when they confer with a teacher or characterize her work for the purpose of recommending employment, promotion, or special treatment of any sort, defend their recommendations by statements of evidence from teaching procedure which they have observed. The basic idea is that the things which a teacher does with the children are indicative of the principles which she supports and of her skill in applying them and should, therefore, form an important basis for any plan for evaluation and improvement of teaching. Supporting this point of view, a quotation from Barr and Burton¹ is pertinent.

The teacher says or does certain definite observable things which indicate to a competent observer that the teaching is good, or that it is poor, or that it is indifferent. What are these things? . . . Before making decisions or giving advice, the supervisor must know the facts and be able to present objective evidence in support of his views. It is not enough to know in a general way, that things are moving along smoothly. A physician who

¹ Barr, A. S. and Burton, W. H. *The Supervision of Instruction*, pp. 113-14. D. Appleton & Co., 1926.

depended upon general symptoms and general remedies would blunder seriously in many of his diagnoses.

Because the analysis of various phases of teaching is so difficult, little progress was made in the evaluation of teaching, beyond the method of mere general estimate, for many years. A brief review of certain more or less recent studies will be given here. These investigations show a gradual evolution from those based on score cards which list traits of teachers defined in general terms, to those studies in which are used techniques for the more objective recording and evaluating of specific things which teachers and children do in the school situation.

SCORE CARDS FOR TEACHERS

Elliot ² is credited with the introduction of the method of rating teachers by means of a score card. In his well-known study made in 1910, Dr. Elliot listed 100 traits which he briefly described and arbitrarily weighted. His scheme was thoroughly tested with results which left much to be desired. It was found that when several raters observed the same teaching simultaneously practically none of the correlations in rating exceeded 0.20. Many were negative. Dr. Elliot's study, however, did much to stimulate inquiry along the line of measurement of the more intangible qualities of teachers. It was followed by a somewhat similar study by Boyce ³ in 1915 and by any number of other less extensive efforts directed along the same lines.

Such score cards have always been open to attack because of their lack of objective standards for judgment of the presence of the general traits which they list. This weakness is noted by Barr and Burton ⁴ thus:

There can be no agreement as to the quality of instruction and consequently no scientific criticism of teaching so long as we use general, ill-defined terms; such as, sense of justice, tact, force, personality, enthusiasm, adaptability, etc. The general terms in which principles of teaching are usually formulated are equally unsatisfactory. We must go back of these general terms to evidences upon which they are based. Back of each is a series of definite, objective, observable teaching acts.

Rugg ⁵ presented a more objective method of evaluating teach-

² Elliot, E. C. *Outline of a Tentative Scheme for Measurement of Teaching Efficiency*. Madison, Wisconsin, 1910.

³ Boyce, A. C. *Methods of Measuring Teaching Efficiency*. *Fourteenth Yearbook of the National Society for Study of Education*, Part II, 1915.

⁴ Barr, A. S. and Burton, W. H. *Op. cit.*, p. 583.

⁵ Rugg, H. O. "Self Improvement Through Self Rating." *Elementary School Journal*, 20: 670-84, 1920.

ing than had been produced previously. He directed attention to specific teaching acts by means of brief lists of questions and also incorporated in his plan a scheme of rating by direct comparison, known as the human ladder or the man-to-man comparison, which had been introduced previously by Walter Dill Scott. His score card includes directions for inserting on a scale the names of actual people possessing in varying degrees the qualities to be scored. The rater is directed to use this human scale as a standard for comparison for all individuals rated.

After considerable use of the man-to-man rating scheme in rating army officers, Rugg⁶ concludes that ratings can be made successfully.

First, if each final rating given a person is the average of *three independent* ratings, each one made on a scale as objectified as the man-to-man comparison type of scale. Second, if the scales on which the ratings are made are comparable and equivalent, having been made in conferences under the instruction of one skilled in rating scale work. Third, if the three raters are so thoroughly acquainted with the person rated that they are competent to rate.

He concludes that these conditions would be very difficult to obtain in the average school situation. He recommends that teacher ratings be made for diagnostic purposes and that teachers and administrators coöperate in rating for the purpose of the improvement of teaching.

Dr. Rugg's work undoubtedly marks an epoch in teacher rating. His instrument, however, lacks effectiveness even for the purposes to which he assigns it because it directs major attention to methods of class instruction and is not well adapted to evaluating the teacher's direction of children's activities. The man-to-man comparison has been incorporated in many succeeding scales. Outstanding among these is the one in present use in Detroit, Michigan.⁷

PROGRESS OF CHILDREN AS AN INDEX OF TEACHING EFFICIENCY

With the development of standard tests for children, a natural next step was the conclusion that teaching efficiency can be measured by amount of growth in children as indicated by their

⁶ Rugg, H. O. "Is the Rating of Character Possible?" *Journal of Educational Psychology*, 12: 425, 1921.

⁷ *Manual of Directions for Making Efficiency Card Ratings*, Board of Education, City of Detroit, 1928.

scores on tests. In one study based on this assumption the author, Lelah M. Crabbs⁸ uses the Accomplishment Ratio (A.R.) formula proposed by Franzen:

$$\text{A.R.} = \frac{\text{Subject Age}}{\text{Mental Age}} \times 100$$

Teacher Efficiency = Final A.R. — Initial A.R. Regarding this method Dr. Crabbs says:⁸

The chief virtue of this method lies in the fact that it focuses attention in education more definitely upon desirable changes made in children. Its main weakness lies in the fact that, as yet, we cannot measure indirectly many of the outcomes in education, some of the unmeasured outcomes being probably among the most important of all.

Obviously, the value of this method will improve as measurements of children's progress improve. At present, however, the measurable factors in child growth are not sufficiently inclusive or accurate to insure an adequate judgment of real values. There is a danger, at our present stage of progress, that any considerable employment of this method will influence teachers toward undue weighting of measurable factors to the neglect of important things which cannot as yet be measured.

Although he looks optimistically upon the future for measurement of teaching by measuring child progress, McCall⁹ says:

Do the results from standard tests given to a class reveal the efficiency of the teacher of that class? They do and they do not. They do provided certain conditions obtain. These conditions are roughly obtainable by experimental control of the situation. They do not, because the conditions necessary for just evaluation of the teacher's efficiency rarely obtain in the ordinary uncontrolled testing situation.

All told more harm may easily be done than good. The use of tests for the guidance and diagnosis of pupils is so much more vital than their use to evaluate teachers that the former should not be lost through antagonizing teachers in order to obtain the latter.

JACOBS' STUDY OF RATING CARDS

We are indebted to Charles L. Jacobs¹⁰ for a recent careful study of teacher rating schemes. In his study of the relation of the teacher's education to her effectiveness he concluded that the

⁸ Crabbs, Lelah Mae. *Measuring Efficiency in Supervision and Teaching*, pp. 30 ff. Teachers College, Columbia University, Contributions to Education, No. 175, 1925.

⁹ McCall, W. A. *How to Measure in Education*, p. 150. Macmillan Co., 1923.

¹⁰ Jacobs, C. L. *The Relation of the Teacher's Education to Her Effectiveness*, p. 25. Teachers College, Columbia University, Contributions to Education, No. 277, 1928.

best method of evaluating teaching now available is that of securing expert judgment. He says:

From the work of . . . investigators and from reading in related fields like personnel management, there emerges the conviction that the most reliable criterion at the present time with respect to teacher effectiveness is the conscientious and deliberate opinion of competent judges.

The theory underlying this conclusion is that where objective measures in terms of amount are not fully applicable in determining the degree to which a given characteristic or group of characteristics is present in a certain situation then the opinion of competent judges must be resorted to either in whole or in part.

While Dr. Jacobs was forced back to this fundamental thesis which had been the basis for former unsuccessful studies, he used extreme care in formulating his instrument so as to obviate certain difficulties which had been met with by his predecessors. To quote his standards in his own words:¹¹

1. There should be as small a number of items as is commensurate with reasonable comprehensiveness.
2. The items should be selected so as to provide against undue overlapping.
3. The factors to be rated should be expressed in terms of function rather than structure.
4. Provision should be made for recording the ratings graphically.
5. All items should be carefully delimited by precise definitions so as to induce greatest possible amount of uniformity of interpretation.
6. Procedure in rating should be carefully worked out, and each rater asked to follow it.
7. The blank should be convenient in size and arranged so as to provide easy handling and rapid inspection.

Dr. Jacobs was unable to find any rating scheme in present use which measured up to these standards sufficiently to satisfy his purposes. In the thirty-three service rating cards which he analyzed he discovered 759 fairly independent items of which 497 could be classified under some one of the headings which he finally adopted for rating the teachers in his own study. Briefly summarized these headings are classified as follows:¹²

Insight into the school's function, 113; command of subject matter, 59; skill in instruction, 121; effectiveness in classroom management, 125; ability and willingness to coöperate, 136; capacity for work, 32; desire for progress, 21.

¹¹ Jacobs, C. L. *Op. cit.*, p. 39.

¹² *Ibid.*, pp. 38, 39.

These seven items, or rubrics, are defined and weighted. For convenience in scoring, a scale line accompanies each. The care with which Dr. Jacobs has selected and defined the items included on his rating card and the brevity of the instrument make it easy to use and effective for certain purposes, but limit it for any minute diagnosis of teaching difficulties.

OBJECTIVE ANALYSES OF TEACHING PROCEDURE

Increasing effort is being made at the present time to record objective evidence of what happens in the classroom and to draw generalizations from the data thus derived. A pioneer study of this type is that made by Romiett Stevens¹³ in 1912 on *The Question as a Measure of Efficiency in Instruction*. Dr. Stevens observed class recitations and analyzed stenographic reports of lessons. She evaluated these data on the basis of the number and types of questions asked by pupils and teachers. Another early study of this type was made by Ernest Horn¹⁴ in 1915. By recording the activities of each child in the classroom, he was able to show that many teachers tend to give more time and attention to the able children than to those with less ability. These early studies suggest a method of analyzing classroom procedure for objective study. New techniques such as Morrison's¹⁵ Attention Charts, Barr's¹⁶ Time Charts, and Brueckner's¹⁷ Studies of Time Allotments are typical of recent methods of recording exactly what happens in the classroom. Objective evidence recorded by such methods furnishes a new basis for diagnosis of teaching difficulties.

JOB ANALYSIS AS A BASIS FOR CURRICULUM CONSTRUCTION

W. W. Charters, Director of the Commonwealth Fund Study for Teacher Training Curricula, has in process the most extensive job analysis of teaching which has ever been made. His purpose is to form a basis for a curriculum for teacher training by a study of what teachers actually have to do.

¹³ Stevens, Romiett. *The Question as a Measure of Efficiency in Instruction*. Teachers College, Columbia University, Contributions to Education, No. 48, 1912.

¹⁴ Horn, Ernest. *Distribution of Opportunity for Participation Among the Various Pupils in Class Recitation*. Teachers College, Columbia University, Contributions to Education, No. 67, 1915.

¹⁵ Morrison, H. C. *The Teaching Technique in the Secondary School*, pp. 11 ff. Edwards Brothers, Ann Arbor, Mich.

¹⁶ Barr, A. S. and Burton, W. H. *The Supervision of Instruction*, pp. 598, 599. D. Appleton & Co., 1927.

¹⁷ Brueckner, L. J. "Study of Time Allotments in Minneapolis Elementary Schools." *Journal of Educational Method*, Vol. VI, No. 7, March 1927.

The organization adopted for the Charters analysis is significant of the types of activities in which teachers must be skilled. The headings which appear on the tentative list which is now being evaluated by a large number of teachers is as follows:

- (1) Teachers' activities involved in classroom instruction.
- (2) Teachers' activities involved in school and class management (exclusive of extra-curricular activities).
- (3) Activities involved in supervision of pupils' extra-classroom activities (exclusive of activities involved in school and classroom management).
- (4) Activities involving relationships with personnel of school staff.
- (5) Teachers' activities involving relations with members of school.
- (6) Activities concerned with professional and personal advancement.
- (7) Activities in connection with school plant and supplies.

The character of this thoroughgoing analysis of teaching bears a certain relation to the analysis used in the present investigation. Of greater significance to this study, however, are the check lists of both pupil and teacher activities which have been devised for use in supervision of teaching.

ANALYSIS OF PUPIL ACTIVITIES

As a result of an effort to study objectively actual school happenings Connor,¹⁸ with the aid of teachers in elementary grades, has collected, classified, and condensed hundreds of desirable concrete acts of pupils. The classification has the following headings, each defined in terms of the dictionary and again in terms of educational standards: (1) thinking, (2) knowledge and skill, (3) emotional reaction, (4) morale in dispatch of work, (5) initiative in socially significant situations, (6) ethical self-control in socially significant situations and (7) deportment.

This check list of pupil activities has been used under the direction of its author in the schools of Cleveland in an attempt to compare the effectiveness of the platoon and the traditional school organization by estimating the growth of children in the traits listed. Ratings were made in October and in May and were based on what actually went on in the classroom during the visit of the observers. The teacher's work was given a rating according to the growth in traits made by her children. Scores were

¹⁸ Connor, W. L. "A New Method of Rating Teachers." *Journal of Educational Research*, 1; 338-58, May, 1920. Also *Rating the Teacher by Observing the Pupil Activity*. Division of Research and Reference, Board of Education, Cleveland, Ohio, Bulletins No. 39, Oct. 1, 1924; No. 8, Jan. 8, 1925; No. 5, Aug. 19, 1925.

summarized on a simple score card on which each of the seven items had been weighted by the combined judgments of one hundred experts in education.

The Connor rating scheme represents a unique contribution to the study of specific, objective acts of children in the learning situation. The adaptation of the items enumerated to all ages of childhood, however, may well be questioned. Clearly the same specific standards of conduct cannot be held up for attainment at all ages represented in the elementary school. Another question occurs with regard to the apparent similarity of headings employed in the organization—morale, ethical self-control, deportment, etc. The directions for use lack any specific statement of how to arrive at an estimate of the degree to which various traits are present.

Collings¹⁹ also makes the study of children's activities the basis for the evaluation of teaching. He prefaces his scale with a statement of educational principles founded on the Dewey-Kilpatrick philosophy concluding with this statement which is the crux of the study:

Education is considered as changing the drive and response of children along traits of purposeful activity.

Teaching is stimulating and directing purposeful activities.

Teaching is measured in the extent of functioning of children's response along their drives in traits of purposeful activity.

The method for using the Collings instrument is briefly this: The observer checks the drives and responses noted in each individual, including the teacher. He treats the data by the following formulae in which C.D. means child drive, C.R. means child response, T.R. means teacher response, and M.R. means the mean group response. Then:

$$\text{Drive index} = \frac{\text{C.D.}}{\text{C.R.}} \quad \text{Response index} = \frac{\text{C.R.}}{\text{C.R.} + \text{T.R.}}$$

$$\text{Response index for group activity} = \frac{\text{C.R.}}{\text{M.R.}}$$

Collings has used this instrument with a reliability on each of twelve separate items ranging from +.40 to +.83 and advocates it as an interesting experiment in objective observation of school procedure.

¹⁹ Collings, E. "A Conduct Scale for the Measurement of Teaching." *Journal of Educational Method*, 6: 97-103, 1926.

CHECK LISTS OF TEACHING ACTS

Recently check lists of teaching procedures have been devised to call the attention of supervisors and teachers to the significant teaching acts actually observed in the work of teachers. One of the most complete of these lists covering both subject matter and method was made by Barr²⁰ and staff of the Detroit public schools and appropriately called *Elementary School Standards for Improvement of Teaching*.

Burton²¹ in *Supervision and Improvement of Teaching*, presents several lists based on types of teaching such as drill, perception, individual differences, problem solving, and the like. Other lists may be found in such books as Maxwell's²² *Observation of Teaching*, Anderson, Barr and Bush's²³ *Visiting the Teacher at Work*, and Johnson's²⁴ *Administration and Supervision of the High School*.

Florence E. Bamberger²⁵ has made a preliminary report of an experimental study of observable, improvable teaching acts being conducted under her direction at Johns Hopkins University. She presents several carefully analyzed check lists covering factors in teaching method, types of lessons, classroom control, changes wrought in children, changes wrought in teacher, and changes visible in the classroom. She goes a step farther than many others who have formulated check lists and presents a method of assigning scores to degrees of efficiency ranging from 1 (which is above the average) to 7 (meaning evidence not present but possible to have been present). From experimental use of the measures, Dr. Bamberger²⁶ draws the following tentative conclusions:

- (a) The standards for evaluating method with the appended surveys are practical and effectual in evaluating and improving the work of teachers.
- (b) The measure for evaluating the observable, improvable factors in

²⁰ Barr, A. S. and Others. *Elementary School Standards for the Improvement of Teaching*. Edwards Brothers, Ann Arbor, Mich., 1925.

²¹ Burton, W. H. *Supervision and the Improvement of Teaching*, pp. 89 ff. D. Appleton & Co., 1922.

²² Maxwell, C. R. *The Observation of Teaching*. Houghton Mifflin Co., 1917.

²³ Anderson, C. J., Barr, A. S. and Bush, Maybell. *Visiting the Teacher at Work*. D. Appleton & Co., 1925.

²⁴ Johnson, F. W. *Administration and Supervision of the High School*. Ginn & Co., 1925.

²⁵ Bamberger, F. E. *A Supervisory Scheme for Evaluating and Improving Teachers in Service*, pp. 5-15. Educational Monograph, Society of College Teachers of Education, Vol. XIV, 1925.

²⁶ Bamberger, F. E. "A Survey of Observable, Improvable Factors which Evidence Skill in Teaching." *Elementary School Journal*, 28: 181-85, 1927.

teaching skill yields valuable results both in rating and in improving the quality of teaching.

- (c) A measure for evaluating the technique of teachers can be evolved which will yield valuable results both in rating and improving the qualities of teaching.
- (d) The measures used in this experiment have been mutually acceptable to the teachers and supervisors and put them *en rapport* professionally and "humanly".

In defense of such check lists as have been described, the following quotations from Barr and Burton²⁷ are pertinent:

Listing or checking the activities observed in a lesson does not in itself evaluate the teaching. Such a procedure supplies the data from which the situation may be studied and evaluations made. We cannot observe the process of learning as it goes on, since it consists of changes made within the learner, but we can observe certain activities which are known to connote, or are supposed to connote, learning or interference with learning.

Three objections are often raised against the method of analysis. It is thought by some that the checklists or outlines are: (1) instruments of inspection, (2) too detailed and cumbersome, and (3) disregarding of, if not inimical to, the intangible spiritual elements in teaching.

The first two objections are disposed of easily. The checklists are not instruments of inspection, though they may be used as such, if desired. This criticism arises from an erroneous understanding of the theory underlying their use. In regard to the second criticism, it is true that the outlines do look unduly cumbersome at first sight. Much of the detailed listing, however, is of material already familiar to the trained teachers and supervisors. . . . Through study and use the competent supervisor soon acquired mastery over the detailed items. The instrument properly constructed and properly understood should not stand in the way of the user.

. . . The third objection to the method of analysis is important and widespread. Many people look upon detailed analysis as inimical to, if not destructive of, "spirit", "morale", and "atmosphere" in teaching. . . . It is quite true that analysis can be overdone. Such an error is not likely to be made in education for some time to come. It would be, however, far less serious than the opposite error—failure to analyze. Failure to analyze renders the improvement of teaching impossible. It may, and often does, work a serious injustice to teachers.

ANALYSIS IN EARLY ELEMENTARY EDUCATION

So much space has been devoted to check lists of teaching because they relate in spirit and purpose to the present study. The check lists described, however, are poorly adapted to the subtle processes of teaching in the nursery school, kindergarten, and

²⁷ Barr, A. S. and Burton, W. H. *The Supervision of Instruction*, pp. 117, 133. D. Appleton & Co., 1926.

first grade. In this field, few investigations have been made which involve teaching analysis.

Parker and Temple²⁸ are almost encyclopedic in the inclusiveness with which they survey the field in their book, *Unified Kindergarten and First Grade Teaching*. They include a large variety of stenographic reports of lessons which they analyze from the standpoint of clearly defined principles of good teaching. Such analyses are helpful to both teachers and supervisors.

The *Conduct Curriculum for Kindergarten and First Grade* by Patty Smith Hill²⁹ and her staff is an ambitious yet simple analysis of young children's school activities translated into desirable changes which could and should be brought about in children as a result of these activities. This analysis supports the present study by showing the simplicity of the learning situation for the little child and indicating the importance of interpreting educational principles into the minutiae of everyday experience lest they pass unrecognized by the adult educator.

Two studies based on stenographic reports of work in kindergartens and primary grades are of interest. One carried on under the direction of Annie E. Moore³⁰ includes reports of a day's procedure in six definite types of schools. The analysis of these records showed up several points of interest, outstanding among which was the computation of the per cent of time given to pupil self-direction as against the time spent under teacher direction. The schools present a well-graduated scale from that entirely directed by the teacher to that giving 41 per cent of the day to children for self-direction. This study suggests possibilities for further work.

Another study, *General Practice in Kindergarten Education in the United States*, conducted under the direction of Mary Dabney Davis³¹ included one hundred and thirty-six stenographic reports of typical days' procedure in kindergartens and replies of five hundred and thirty-five teachers and one hundred and sixty-two school administrators to an inquiry. The administrative aspects of this report are prominent, but of greatest interest to the present writer is the method used for scaling the various activity periods

²⁸ Parker, S. C. and Temple, Alice. *Unified Kindergarten and First Grade Teaching*. Ginn & Co., 1925.

²⁹ Hill, Patty Smith and Others. *A Conduct Curriculum for the Kindergarten and First Grade*. Charles Scribner's Sons, 1923.

³⁰ Moore, A. E. What Constitutes an Acceptable Day's Work in Primary Grades. National Council of Primary Education, Vol. III, 1919-20.

³¹ Davis, Mary Dabney. *General Practice in Kindergarten Education in the United States*. National Education Association Bulletin, 1925.

found in the records. Five descriptions of teaching method were used as standards for scoring the various types of activities found in the stenographic reports. The statements of the five points, minus their amplifications, are given below:

- (1) The teacher plans and directs the program and activities.
- (2) The teacher carries out her plans with the coöperation of the children.
- (3) The children suggest and carry out the plans under teacher guidance.
- (4) The children make the plans and program under pupil leadership with teacher guidance.
- (5) The children make the plans and program without teacher guidance.

This is a brief scale with some similarity to the more detailed method employed by the present writer for scaling specific teaching acts. It is not in complete agreement with the scale used in this study since it is graded from complete teacher direction to complete self-direction by children while the scales used in the present study are based on degrees of teaching skill and the artist teacher at the fifth point of the scale does not withhold all guidance and supervision.

Mary M. Reed,³² with the assistance of graduate classes for five successive years, has formulated three separate score cards for detailed survey of the nursery school, kindergarten, and first grade. These score cards demand minute and objective checking on the complete situation; staff qualifications, achievement level of children, curriculum standards, plant standards, room standards, and equipment standards. Actual, objective evidence is assembled as a basis for scoring. Maximum scores are assigned to each item and per cents of attainments are computed from them. The method of use requires the writing down of all evidence including equipment lists, room and plant facilities, a three-hour diary record of teaching procedure, and the checking of the score cards on the basis of written evidence. These score cards have been used by many classes of students in Teachers College under the direction of Professor Hill and Dr. Reed as instruments for training prospective supervisors in the evaluation of teaching and those aspects of the school plant and equipment which affect teaching. When they are published they will be welcomed for more extensive use.

³² Reed, Mary M. Nursery School Score Card, Kindergarten Score Card, First Grade Score Card. (Unpublished research, Department of Kindergarten-First Grade Education, Teachers College, Columbia University.)

SUMMARY

In making the present analysis,³³ the writer is directly indebted to all the studies listed above and to many others for stimulation of her thinking. She has attempted to make:

1. An analysis of the complex process of teaching in early elementary education into specific teaching acts which, according to educational principles, are supposed to promote or inhibit desirable changes in children.
2. Such an arrangement of items that varying levels of efficiency in teaching can be checked by comparison of actual performance in the classroom with the samples or definitions contained in the analysis.
3. A scheme for graphic representation of strong and weak points in teaching.
4. A suggestive method by which teachers and supervisors may come to a common understanding concerning the application of educational principles to the minute processes of early education, and may thereby work together for improvement of teaching in a common project.
5. A preliminary use of the instrument under typical school conditions to determine the feasibility of the scale.

³³ The reader is referred to a copy of the scaled analysis in the Appendix, pp. 87 to 113.

CHAPTER II

PRINCIPLES BASIC TO THE ANALYSIS OF TEACHING

An effort has been made in this study to analyze the complex process of teaching in the earlier years of school education into specific teaching acts which, as they support or contradict educational principles, are presumed to promote desirable or undesirable changes in children. The purpose of such an analysis is to supply a convenient instrument on which varying levels of teaching efficiency can be checked by comparing actual observed performance in the classroom with specific samples contained in the analysis. No attempt has been made to analyze the activities of the teacher which extend outside the classroom or to draw a complete picture of her personality; rather the purpose has been to show in an objective way the application of certain principles of education to specific procedures.

In making such an analysis certain factors have been considered :

1. An analysis of teaching should be made in terms of the nature and needs of children.
2. The scope of school activities analyzed should not be confined to those which bring about intellectual learning, but should include representative samples of procedures which influence all phases of development.
3. The age-range of children included in the teaching analysis should be sufficient to indicate continuity of child experiences and growth, but it should be narrow enough to make possible quite specific descriptions of teaching acts.
4. The organization of an analysis such as this purports to be should direct the observer's attention to significant learning situations in the everyday life of the child and should aid in the appreciation of their significance.
5. The method employed by the teacher in directing and shaping children's educative experiences should be described.

In the consideration of these factors certain principles emerge which influence the nature of the analysis and are, therefore, worthy of detailed study. These principles apply to teaching in the upper as well as in the lower grades. Their practical application to specific activities in the nursery school, kindergarten, and first grade, however, is subtle and intangible since the immaturity of the children in these grades demands that the teachers make a distinct departure from traditional upper grade procedure. For years many school supervisors and administrators have evaded the responsibility of evaluating what happens in the kindergartens in their charge because they have felt themselves incompetent to interpret the subtle procedure and subtle outcomes which they have observed in these grades. Today the nursery school presents new perplexities. The objectives and principles should be discernible, however, in the informal procedures of early education. In comment on this situation E. Mae Raymond,¹ in a recent article in the *Teachers College Record*, maintains that the four objectives which have become more or less standardized in democratic education—fitness for physical efficiency, for personal efficiency, for social efficiency, for profitable use of leisure, are as truly objectives for accomplishment in the nursery school as in any other educational institutions. She concludes: "There can surely be small doubt that the beginnings of all subjects of study are found in the nursery."

The interpretation of educational goals in personality and in subject matter form the subject of this study. Necessarily both teacher activity and child activity have been analyzed in order to accomplish the purpose.

TEACHING IN TERMS OF CHANGES BROUGHT ABOUT IN THE LEARNER

Presenting the work of the teacher in terms of child needs and growth is a complex but not an impossible task. Whatever has been included in this analysis has been presented from the viewpoint of the child. One who fears that an outline of observable teaching acts will draw attention away from the children should note that even the mechanical thing which the teacher does in the classroom can be translated into her relationship to the children. The way in which the schoolroom is cared for indicates the habits

¹ Raymond, E. Mae. "The Nursery School as an Integral Part of Education." *Teachers College Record*, 27: 789, 1926.

of cleanliness and order which the children are forming; the way in which the teacher protects children from physical danger reflects the children's learning of habits of caution either free from fear or associated with it. One might continue with numerous examples of teacher activity and child activity which supplement and determine each other through this intimate interrelationship, but those suggested seem sufficient to indicate the interaction which is described in this analysis.

CONTINUOUS INTEGRATED DEVELOPMENT OF THE WHOLE CHILD

An analysis of teaching in terms of children's activities and growth should be as inclusive as is child nature itself. The school should assume the responsibility for promoting the continuous, all-round development of the whole child—physical, mental, emotional, and social. This fact makes it necessary to include in an analysis of teaching the teacher's provision for the children's physical care, for their emotional and social adjustment, as well as for their mental attainments.

The educator probably adopted a comprehensive point of view from noting that the clinician studies his patient from every angle in order to diagnose difficulties and prescribe treatment. The newer child study movements, also, have tended in the direction of so coördinating researches that all factors contributing to child behavior come to be seen in their proportionate relationship to each other. To the educator the assumption of responsibility for all aspects of the child's full-rounded development means a point of view with regard to what constitutes a child's learning broadened until it includes emotional concomitants, social-moral behavior, creative expression, and techniques, and assumes, also, a responsibility for promoting his physical well-being. The kindergarten recognized from the first the broader aspects of child learning and introduced a new conception of the social organization of the school so that these learnings might be encouraged. Since the kindergarten was a comparatively young institution, it was founded on a philosophy considerably in advance of that of our earliest American schools. It took into account the educative possibilities of the child's natural play, his entrance into the life about him through social imitation, and his learning through self-activity.² In addition, the immaturity of the kindergarten children made

² Parker, S. C. and Temple, Alice. *Unified Kindergarten and First Grade Teaching*, pp. 8-9. Ginn & Co., 1925.

them less susceptible to pure subject matter learning and, therefore, the demands for a broad curriculum of activities became more coercive in the kindergarten than in the upper grades of the elementary school. Though the kindergarten is comparatively a young institution in the educational scheme, the nursery school is still younger. From the first it has emphasized the care for both physical and mental hygiene. Before its rapid spread occurred, physicians and nurses had accumulated many facts regarding the social wastefulness of neglecting the physical care of earliest childhood. Parents of the type who are apt to support nursery schools are sensitive to the fact that their young children have exacting physical needs. They have brought these children through two years of infancy during which the physical aspects of development were ever apparent and relentlessly exigent. Such parents are not willing to surrender their children to any institution not equipped to continue the wholesome physical regime which they have established. Fortunately, for their own development nursery schools have often been allied with research laboratories equipped for protecting children from physical blights and, also, as research becomes fruitful, for demonstrating to parents new and better methods of caring for their children.³

Not only in the nursery school, but also in the grades beyond, teachers cannot relegate the child's physical care entirely to specialists. Knowledge of child health and skill in caring for children's physical needs have, therefore, been added to the qualifications of an efficient teacher. Tied up with the program of health is a great deal of learning by the child; habits and techniques are to be fixed and emotional reactions are to be stabilized. Psychologists, psycho-analysts and psychiatrists have stressed the importance of wise mental hygiene in formative years. Dr. Watson's⁴ experiments with infants, now classic among educators, have been followed by considerable clinical analysis which indicates that teachers and parents must attend to those aspects of education that tend to bring about mental health and emotional stability, particularly in the child's early years. Professor Hill⁵ says:

When educators manifest a reverence for the dawning mental life comparable to the respectful study and attention now bestowed by physicians

³ Woolley, Helen T. "The Nursery School," *Concerning Parents*, p. 51. New Republic, 1926.

⁴ Watson, J. B. *Psychology from the Standpoint of the Behaviorist*. Lippincott Co., 1919.

⁵ Hill, Patty S. and Others. *Op cit.*, Introduction, p. viii.

on the physical life of young children, the profession of teaching may hope to rank with that of modern medicine. Fortunately for the young child, as well as for society, we have many evidences of growing appreciation of the effects of these early mental and emotional states upon later sanity, progress, and efficiency in the school and home life.

Each varying period of activity in the child's day has aspects which contribute to the physical, mental, emotional, and social development of the child. This fact has made analysis of teaching difficult. It has necessitated a wide sampling of the day's procedure and the gathering of a wealth of varied illustrations. Both sections of the analysis are organized around the teacher's adaptation and use of the school situation to meet the children's needs for educative work and play. While the first section has particular reference to the child's physical development, this cannot be separated from his acquisition of knowledge, habits, attitudes, and skills. Take, for instance, one item in this section, out-of-door play. Obviously the health motive is uppermost in the teacher's decision to have children play out of doors rather than in the schoolroom, but the analysis leads the observer to evaluate the worth of the period in terms of its joyousness, and its utilization of opportunities for gaining information through the widened experiences afforded by the world outside the school. While casual inspection of the titles might mislead the reader into the conclusion that the items in this section relate to simple duties in management of physical conditions of the room and a mechanical attention to children's physical needs, closer inspection of the definitions discloses careful attention to the wider aspects of child learnings which are bound up with physical development. Such definitions of the function of the teacher in the management of the situation and the physical care of the children gives the first section of the scale quite as much importance as the latter section which has to do with children's creative, expressive, investigative, and communicative impulses in ways which bring about desirable mental, emotional, and social learnings. In order to show the contributions of all activities of the child's day to his well-rounded development, therefore, an effort has been made to include in this analysis a wide sampling of the educative activities which can be progressively adapted to the age levels of the children in the first three steps of early childhood education.

EDUCATION A CONTINUOUS PROCESS

Education is a continuous process. "Stages of development" in childhood are theoretical rather than absolute divisions. Growth is a continuous process through which the child should make uninterrupted progress aided by an unbroken succession of educational advantages progressively suited to his advancing maturity. From two to seven years is naturally a period of unbroken development, but it has often been treated by educators as if such were not the case. Because there were varying social and educational needs and philosophies that gave rise to the three educational institutions—the nursery school, kindergarten, and first grade—their procedures have varied widely.

The first grade is the oldest of the three. It originated early enough to take on, in common with other education of its time, the single objective of teaching reading, writing, and arithmetic, in quite an academic fashion. These subjects were often taught by methods less well adapted to the level of maturity of the six-year-old child than to that of the older children.

The kindergarten was established on the basis of a philosophy which endorsed the idea that experience in natural play of childhood might be educative. It contributed a wholesome concept of social development of children through its own social organization and through its curriculum content based on social life outside of the school. But the kindergarten surrounded itself with the mystic symbolism of Froebel's philosophy, which quite drew it apart from the academically utilitarian first grade. Because of the lack of agreement in philosophy and practice between them, for many years the kindergarten and first grade offered to hundreds of young children a succession of experiences which were at decided cross purposes. Adjustment of this difficulty is now being effected by the unification of kindergarten and first grade in common objectives and procedures.^{6,7}

Recently the nursery school has come into existence to meet various needs. It has no standardized purpose, philosophy, procedure, or equipment. Because it is unhampered by tradition, its possibilities for contribution to theories of education are unique. At the same time, there is danger that it may repeat the mistakes apparent in the history of the kindergarten. Necessarily, the

⁶ Parker, S. C. and Temple, Alice. *Op. cit.*, pp. 3-16.

⁷ Vandewalker, Nina C. *The Kindergarten in American Education*. Macmillan Co., 1928.

nursery school stands isolated from public education at present, but in the lives of the children whom it serves, it is one large section of the continuous educative experience, related to the home on the one side and to the educational system on the other. The contributions of the nursery school must be recognized and utilized by the succeeding school grades. The facts which the kindergarten and the first grade have discovered through long experience should furnish short cuts in the progress of the nursery school. Mistakes and maladjustments of these institutions for the education of young children need not be repeated.

Such considerations as these were factors in the decision to include in the present analysis the teaching in nursery school, kindergarten, and first grade, the first three steps in the continuous process of in-school education.

EDUCATIVE EXPERIENCES RICH IN LEARNING SITUATIONS

Especially at this early level of education, major attention should be given to the provision of educative experiences which are rich in learning situations. For this reason, attention in this study is attracted to the educative experiences of the children rather than to the accomplishment of vague objectives or specific traits, or habits. Certain dangers appear in the use of lists of objectives for children's attainment. First, if these objectives are couched in broad, general terms, they are difficult to interpret and so leave themselves open to faulty application. Second, if objectives are defined in terms of specific traits or habits to be attained, there is danger that teachers will tend to encourage the cultivation of these habits and traits arbitrarily, outside of their natural setting. Under such circumstances, children will have little appreciation of the meaning of these habits or of the necessity for their establishment. To quote from Professor Hill⁸ on this point:

This step forward from a "Habit Inventory" at large to the study of each aspect of the curriculum, not as a formal school subject, but as a social situation rich in activities and experiences leading to the formation of desirable habits, avoids a danger which we had realized from the first; that is, of teaching habits out of their organic relation to situations. . . . When conduct is acquired in a social situation, it not only takes on meaning, but is likely to be associated in the mind of the child with a sense of satisfaction or pleasure. . . . This possibility is increased if the conduct set as the objective is acquired *in* experience, *in* a situation, the conduct

⁸ Hill, Patty S. *Op. cit.*, Introduction, p. xvi.

itself serving, not only as an aim, but as a desirable and economical solution of the problem involved in the experience.

A third consideration in the listing of specific objectives to be accomplished arises from the fact that very often these traits and techniques are not immediately attainable. There is danger that too much stress will be placed upon values which have been too long deferred in the life of the child. Kilpatrick⁹ says:

... my own opinion is clear that we should put our major emphasis on the educative experience. . . . partly because some very desirable traits can come only in this way. . . . Another line of argument is that if we place such traits as knowledge or skills in the foreground, particularly if the time of application be long deferred, then we too frequently have to resort to bribes or threats or spoiling devices to get them learned.

This method of analysis which directs attention to the minutiae of everyday experiences is the natural one for both supervisor and child. The child lives from day to day and gradually develops traits which serve his needs in living. The supervisor sees the specific activities in the specific situation. Through careful analysis and shrewd judgment, she interprets the ends toward which they are leading. By accumulation of specific evidence, she generalizes as to principles involved and evaluates what is taking place.

NATURE OF EDUCATIONAL EXPERIENCES PROVIDED

It has already been pointed out that the school should provide educative experiences that are the stimuli to which the child responds and through which he achieves growth and learning. The rather general recognition of this important objective in early education is indicated by the various curricula which have recently come into existence under the titles of, "Activity Curriculum," "Course of Study in Terms of Children's Activities," "Conduct Curriculum," and the like. Yet it is not enough to decide that children learn through experiences. Principles for selection of those experiences must be set up. To accomplish this, four such criteria have been selected.

1. The experiences of children must be worthwhile learning situations with a definite meaningful relationship to the child's present life. Parker and Temple¹⁰ state this in simple terms:

"Be sure that . . . activities are worth spending time upon."

⁹ Kilpatrick, W. H. "How Shall Early Education Conceive Its Objectives?" *Childhood Education*, 2: 1-12, 1925.

¹⁰ Parker, S. C. and Temple, Alice. *Op. cit.*, p. 263.

A statement from the symposium of principles in the *Twenty-sixth Yearbook of the National Society for the Study of Education*¹¹ emphasizes this:

"The school should provide a succession of experiences and enterprises having a maximum of lifelikeness to the learner. Traits learned in a natural, lifelike setting give promise of emerging in appropriate conduct."

The activity which is "worth spending time upon", then, is one that has a definite meaningful relation to the child's present life, and which so stimulates his responses in natural living as to develop in him new and desirable traits of thought, feeling, and conduct. This principle has been taken into account in the formulation of the present analysis of teaching although the appropriation of the provisions for growth cannot, in the nature of the time limitation, be shown to have occurred.

2. Obviously, then, children's experiences must be interesting to them; i.e., intriguing to their effort to attend, otherwise response will be limited, and desirable growth will not take place. It is easy to discover the interested responses of children but not so simple to evaluate them in terms of social values. The teacher may follow the children's natural interests in thieving, arrest, imprisonment, wild banditry, murder, and the like, or she may redirect these interests into constructive lines. She may by virtue of her own personality, stimulate the children to a superficial interest in adult values which is transient and, therefore, more apparent than real. Effort has been made in this study to show how teachers discover and utilize childish interests that have true social worth.

3. Experiences which are provided should be within the range of children's capacity to understand and of their ability for successful participation. Because of the vast individual differences of children, no one procedure is suited to all. Since certain general characteristics of each age of childhood are known, these can be taken into consideration in providing learning situations and in guiding children through them, but great flexibility must be exerted and great ingenuity exercised if the teacher is to meet the differences of individuals within the group. So far as we know, variations in ability are in part, inherent in the native equipment of the child and, in part, the result of varied experiences acquired before school entrance. The fact that groups of children have

¹¹ Pp. 18-19.

certain similar experiences in their homes and community is of immense aid to the teacher but, also, the fact that there are variations within these common experiences, often of intangible nature, makes teaching an intricate process and the analysis of teaching still more difficult. Thorndike¹² aptly says: "The mind's past experiences and present content determine responses."

These facts are important in any selection or evaluation of school experiences. A consideration of the teacher's provision for varying abilities and capacities of the children in her charge has been attempted in this study, but the evaluation of this aspect of the learning situation has been left to some extent to the discrimination of the observers. Take, for example, the simple experience of the putting on and taking off of wraps. To the youngest children, this is an important and difficult learning situation. The teacher must give children sufficient practice to acquire the skill. She must give them enough help to avoid discouragement and a wrong mental set toward independent effort and self-help. She must withhold help which will cultivate undue dependence upon an adult, yet she must weigh the relative importance of time spent on this situation with other activities in which the child might be engaged. These elements have been indicated in the analysis in so far as possible, but the judgment as to their relative influence in the specific instance rests with the observers.

4. To meet the needs of the individual child for integrated development of all powers, experiences must be varied. This variety is induced, in part, by the number of experiences provided. Variety also follows if the character of the school work is such as to intrigue the effort of the children into ever widening fields of endeavor. In the present analysis of teaching, the teacher who allows children to specialize in one type of skill to the exclusion of others is pictured in contrast to the one who guides children to realize possibilities for a variety of activities. Many and varied experiences have been indicated in the analysis, but except for certain essentials of physical welfare, the number and variety could not be definitely defined for any particular group.

METHOD OF GUIDANCE IN THE LEARNING SITUATION

Up to this point discussion has had to do with principles underlying the scope and organization of the analysis of teaching used

¹² Thorndike, E. L. *Principles of Education*, p. 43. Seiler, New York, 1906.

in this study and the types of learning situations for children included as items in the scale. The remainder of the discussion will relate to principles of method which purport to bring about learning, although the selection of experiences and methods of guiding children through them are so intimately tied up with children's learning that they cannot be separated with any exactness.

NATURE OF THE LEARNING PROCESS

Learning has been variously described or defined by psychologists and educators without disagreement on the common element that it consists of some change brought about through experience. To quote from Perrin and Klein:¹³

In saying that a matter was *learned*, we are stressing the fact that its essential characteristics are due to changes wrought by experience . . . To live means to have experiences . . . This is the general import of the popular adage: to live means to react and to react means to learn.

Dr. Kilpatrick¹⁴ says:

Acquiring new bonds or changing old ones is what we mean by learning.

And again:¹⁵

To learn is to acquire a way of behaving.

Thorndike¹⁶ states in regard to school learning:

The aims of elementary education . . . will be found to be the production of changes in human nature represented by an almost countless list of connections or bonds whereby the pupil thinks or feels or acts in certain ways in response to the situations the school has organized and is influenced to think and feel and act similarly to similar situations when life outside of school confronts him with them.

Although agreed that learning comes about through experience, psychologists have experimented and theorized to a considerable extent in an effort to explain the nature of the driving force impelling the individual to indulge in learning activity. It is not known how the series of movements or activities involved in learning are eventually combined into definite and appropriate series so that the effective modes of behaving are retained and the ineffective discarded. Perrin and Klein¹⁷ summarize nine theories

¹³ Perrin, F. A. C. and Klein, D. B. *Behavioristic Psychology*, p. 196. Holt, 1927.

¹⁴ Kilpatrick, W. H. *Foundations of Method*, p. 29. Macmillan Co., 1925.

¹⁵ Kilpatrick, W. H. *Education for a Changing Civilisation*, p. 97. Macmillan, 1926.

¹⁶ Thorndike, E. L. *Psychology of Arithmetic, Introduction*, p. xi. Macmillan Co., 1922.

¹⁷ Perrin and Klein. *Op. cit.*, pp. 218-84.

of learning and draw the conclusion that no one explanation is adequate to reveal the complex process.

LEARNING AN ACTIVE PROCESS

Certain fundamental theories have been applied to education, and many specific rules for effecting economical learning have been put into operation successfully. Only certain general aspects of learning which appear to affect in a unique way the education of young children will be considered here. Basic to any consideration of school procedure is the principle that children learn through their own response to the stimulus of their environment and not by any passive process of receiving knowledge poured in by means of instruction. In support of this Gates¹⁸ says:

Of prime importance is the . . . generalization . . . that we learn by reacting. Learning takes place only during activity; it is never a passive process of reacting.

LEARNING NOT ISOLATED

Learning, however, does not come about in isolated units but in a synthesis of elements not all of which are discernible in external behavior. In other words, when children are learning to read, they are acquiring not only the mastery of symbols which convey thought but also certain attitudes of joy and desire for reading, or of distaste and resentment for the drudgery involved in acquiring the reading process. They are learning to react in certain ways toward the teacher and the situation. It may be that they learn to welcome the cultivation of the skill of rapid reading to the extent of seeking out opportunities for practice, or they may attend to the activity only under compulsion of the teacher, avoiding it whenever possible and, consequently, forming habits of inattention and irresponsibility. Dr. Kilpatrick¹⁹ has originated a serviceable terminology for the various types of learning. He designates as "concomitant learning" those attitudes or emotional elements which attach themselves to the obvious, external behavior change characteristic of direct learning. Those related activities which are stimulated by the processes of direct learning, he calls "associate learnings." The old-fashioned school which gave color at times to an apparent belief that knowledge

¹⁸ Gates, Arthur I. *Elementary Psychology*, p. 282. Macmillan Co., 1927.

¹⁹ Kilpatrick, W. H. *Foundations of Method*, pp. 99-119. Macmillan Co., 1925.

could be poured into the child's mind, overlooked the facts that not only were meanings, when so administered, ineffectively interpreted, but that many other learnings were going on along with this inefficient process. Children learned habits, some of which tended to destroy or neutralize the hoped-for learning, emotional sets to rebel instead of enthusiasm and desire.

Not unlike the methods of the old-fashioned school teacher are those of the modern nursery school teacher who crams some disliked food into the mouth of a reluctant child. She may succeed in getting the child to eat, but she may also bring about an emotional antagonism which will reappear at the recurrence of serving that particular food; she may establish a dread for the nursery dinner-hour, and she may teach the child merely that the particular food must be eaten when she is present and may be avoided if she is absent or can be thwarted or outwitted.

The consideration for these concomitant learnings has been as difficult to analyze as to regulate in the teaching situation. Where inserted in the scale they have sometimes caused confusion to raters, and, in some cases, have had to be taken out of the revised form because of the writer's inability to describe the evidence for such intangible learnings which might be sought. There still remain in the analysis, however, descriptions of a considerable amount of evidence of this type.

SOCIAL ORGANIZATION IN WHICH ACTIVE RESPONSES ARE ENCOURAGED

Since the child learns through his own responses to experience, one can but marvel at the premium which has been placed in schools on inactivity and quiet, and the obedient following of teacher direction. Until children were given, in recent years, a type of social organization freer than that which formerly existed, there was little realization of the amount of responsibility they could take for their own self-direction and personal conduct. The standard set for social organization in this study is that which is best adapted for the promotion of active responses to the educative environment, and which provides freedom for self-direction and choice, practice in social self-control and recognition of authority as an aid to social well-being. This standard, by necessity, should be variously interpreted for different levels of maturity. The very young child is recognizably individualistic with a certain

amount of dependence upon the adult for security, protection, and sustenance; a dependence which should be withdrawn very gradually. Parents, however, have difficulty in realizing how soon children can assume direction of certain of their own affairs. Frequent evidences of hampered personality development because of infantile dependence on parents are apparent when children make their first separation from the home on their entrance into nursery school, kindergarten, or first grade. The teacher of young children is confronted with the delicate problem of giving just enough and not too much support until adjustment to the school organization is made and continuously thereafter as children gain practice in social self-control.

To what extent group organization and social responsibility are advisable depends upon the readiness of the child to recognize himself as a social being. Nursery school teachers find a greater social interest in two-year-olds than was formerly attributed to them. Dr. Woolley²⁰ comments on this fact:

We used to say that children under five had no group interest, that they were inclined to be solitary, and that their social relationship under that age was naturally with adults rather than with other children. I do not find it true that the two-year-old children are more solitary in their play than the older ones; each two-year-old is apt to go and get something that he wants to play with and play by himself. But he plays with an eye upon his neighbor, and he gets interest and stimulus out of what his neighbor is doing.

This embryonic social interest demands that children have opportunity for spontaneous expression. Only in this way can they gain coöperation, group responsibility, and ability to set up group standards and laws. Certain periods of the day's program which are concerned with children's physical needs should be arbitrarily fixed and interfered with as little as possible. The rest of the day's activities should be flexible, following the needs and interests of the children. The periods of group responsibility and interest grow with the advancing maturity of the children in kindergarten and first grade. Children become increasingly able to assume civic responsibility and to decide matters of group policy when they are wisely directed in a social situation which allows for practice of these abilities.

The place and character of authority in such a social organiza-

²⁰ Woolley, Helen T. "The Nursery School," *Concerning Parents*, p. 56, New Republic, 1926.

tion as is described here, have puzzled many teachers accustomed to the tradition that the teacher is always right, and that children must be trained to recognize, accept and obey her dictates. Some teachers who have attempted to break away from the old order of strict school routine have found themselves in the dilemma of having no order at all. One reason for this may be that children trained to depend upon the authority which directs and controls them are thereby made temporarily incapable of self-direction. Another difficulty frequently arises from a misunderstanding of the true meaning and character of the freedom to be encouraged. When children discover that fixed routines and obedience to signals and requests are demanded by the necessity of their own comfort and well-being, they have learned something about the real nature of authority. They should also learn to recognize authority as an aid to the solution of their problems. They should have the opportunity to exercise authority themselves within the limits of their immaturity in order to learn natural respect for true authority.

CHILDREN'S ACTIVITIES IN TERMS OF LIFE VALUES

Recognizing the nature of the learning process and providing conditions conducive to learning are only a part of the teacher's responsibility for guidance. She must further evaluate the children's natural tendencies to active expression in the light of race experience. She must stimulate and encourage those activities which give promise of developing serviceable techniques and habits of conduct, and those through which the child finds a basis for interpretation of meanings in terms of life values.

Reference to the child's natural tendencies to active expression recalls the earlier discussion of the learning process. The statement was made that psychologists find difficulty in determining the nature of the driving force which motivates or impels activities that bring about learning. Gates²¹ refers to this tendency in terms of fundamental urges both native and acquired when he says:

. . . Learning and habit formation is adjustment to the conditions of life, but the kinds of adjustment we strive to make are determined at first almost wholly and throughout life very largely by the character of our fundamental urges. We try to avoid the annoying and to achieve the satisfying states

²¹ Gates, A. I. *Op. cit.*, p. 281.

of affairs, and in thus striving we learn; but what annoy and what satisfy are largely determined by the number of native and acquired cravings.

Formerly, a common statement of the educational principle involved here was that education should stimulate, inhibit or direct and guide the children's instincts or instinctive tendencies. But since the term instinct has been denied in certain modern discussions, and a better label has not been supplied, clarity becomes difficult because of lack of terminology. Habit will not suffice as a term to cover the range of activities of the child although it has been much used in relation to early education. There is an observable tendency, especially in the nursery school, to stress the formation of sleep habits, eating habits, habits of cleanliness, of elimination, and the like, with a disregard for the cultivation of other aspects of natural child responses which can be called habits only by a broader use of the term than lends itself to average interpretation. There is danger that we grow to regard the young child as a mechanistic animal capable of being set off to make a certain response to a given stimulus.

Important as are these habitual reactions which result from repeated responses to specific urges along serviceable lines, emphasis must also be placed here on other forms of expression. The writer has found useful Dewey's²² classification of impulses which must be satisfied through expression; creative, communicative, expressive, and investigative. In the present analysis, expression of these impulses is provided for in a variety of ways—through use of materials, literature, music, language, problems, and the like. Dr. Dewey points out that a child must express an idea before he can fully clarify it in his own thinking. He says:

Every mode of expression no matter how fantastic, no matter how impressionistic, has these two sides of the idea and technique. . . . A mode of expression separated from something to express is empty and artificial, is barren and benumbing. . . . If there is one principle more than another upon which all educational practice must base itself, it is precisely in this: that the realization of an idea in action through the medium of movement is as necessary to the formation of the mental image as is the expression, the techniques, to the full play of the idea itself. . . . It requires very little observation of a child to reach the conclusion that he does not get hold of any impression or any idea until he has done it; the impression is alien, is felt as inadequate, as unsatisfactory, until the child makes it his own by turning it over into terms of his own activities.

²² Dewey, John. "Imagination and Expression and the Psychology of Drawing," *Kindergarten Magazine*, pp. 3, 5, 6, 1896.

The rounded development of the educative experience for the child involves, then, active expression of fundamental urges or impulses on the level of his maturity. The task of the teacher in evaluating those modes of expression which are of greatest value to the child at his present stage of maturity, in the light of demands which society will later make upon him, is a delicate one. The teacher should recognize the child's readiness to act along desirable lines. She should organize his scattered efforts, and give just enough and not too much help so that his performance will be raised to higher and higher levels. The teacher should help the child to discover broader interpretations of meanings. She should see that his habits and skills become more serviceable in meeting his ever expanding needs, that his knowledge covers an ever widening scope, that his generalizations are ever more nearly true and adequate for an interpretation of life.

SHAPING OUTCOMES OF CHILDREN'S ACTIVITIES

As has been indicated, the teacher accomplishes these results, in part by stimulating and encouraging desirable tendencies to expression. Further, her part in the selection of those activities which are to continue and those which are to be discouraged consists, according to the theory adopted here, in shaping satisfaction and annoyance so that they attach themselves in a logical and meaningful way to the appropriate elements of the child's behavior.

APPLICATION OF EDUCATIONAL PRINCIPLES TO THE ANALYSIS OF TEACHING

The final organization of the analysis of teaching into a scale on which the strong and weak teaching acts can be located was made by taking account of the principles enumerated. In general, the teacher who is apparently not cognizant of these principles is given the lowest score; the teacher who tries to meet the children's needs but does it in the wrong way is rated higher because of this effort. At the positive end of the scale, the teacher who recognizes the nature and needs of the children and provides for them in an efficient fashion is given a score of four. The artist teacher is one who adds to the performance of the good teacher certain fine discriminations and exceptional skills. She is described at the extreme upper end of the scale. The midpoint between these sets of discriminations of teaching success is undefined.

Certain limitations to the inclusiveness of this scaled analysis were indicated at the opening of the chapter. Because it is adapted to use in classroom observation, the teacher's coöperation with parents and coworkers has been omitted for the most part. This phase of teaching is recognized as important, however, and for this reason those evidences which might at some time be observed have been included, such as the teacher's appeal to specialists for help in the interpretation of emotional difficulties of children, and her influence on children's eating habits which appear to carry over into the home. But, for the most part, items of this character were omitted from the revised scale because they disturbed the users. The personality of the teacher, as such, was purposely omitted because of the subjective nature of personality traits and the desire to adhere more strictly to objective data and thereby to avoid, if possible, those haloes of general estimate which appear always to have characterized ratings of personality traits.

SUMMARY

In summary, the principles which are assumed in this study to represent desirable teaching are:

1. The school should assume responsibility for the continuous all-round development of the whole child: physical, mental, emotional, and social.
2. Major attention should be given in education to the provision of educative experiences which are rich in learning situations: (1) which have a definite meaningful relationship to the child's present life, (2) which are interesting to the child and, at the same time, of social worth, (3) which are suited to the level of maturity of each child, and (4) which are varied enough to induce a variety of responses and, therefore, a well rounded development.
3. The teacher should so guide the children in their experiences that desirable learning will take place in an effective manner. Because learning is an active process she should:
 - (1) Provide a social organization that is best adapted to promotion of active responses to the educative environment, and which provides freedom for self-direction, practice in social self-control, and recognition of authority as an aid to social well-being.

- (2) Cultivate an enlarged consciousness of her task which recognizes not only direct outcomes, but also associated attitudes, emotions, and appreciations whether coöperative or antagonistic.
- (3) Evaluate the natural active expression of children in the light of past race experience, present and future social needs and encourage those activities which give promise of developing serviceable techniques and habits of conduct and those through which the child finds profitable expression of his natural impulses; through which he interprets meanings of life and makes them his own.
- (4) So shape the outcomes of the children's activities that the resultant satisfactions and annoyances will tend to bring the child to higher and broader levels of thinking, feeling, and doing.

CHAPTER III

PRELIMINARY EXPERIMENTATION

The specific items in the analysis of teaching presented in this study were assembled from the contents of a large number of written records of classroom procedure, many hours of supervisory observation, the advice of several experts in supervision and graduate students in education, and from books on teaching. Each general item was then scaled on the basis of five points representing degrees of efficiency as determined by a set of principles agreed upon by a group of educational experts as basic assumptions of what constitutes good teaching. The list of teaching acts thus derived is by no means a complete inventory of what teachers do in actual situations, but it is the result of an attempt to choose significant samples of typical classroom procedure and so to organize them that they will help an observer to determine the significance of what teachers do and to record observed procedure in such a way as to throw into relief strong and weak points. The principles underlying the analysis have been discussed in the preceding pages. In the present chapter a brief account will be given of: (1) the method by which the teaching acts included in the analysis were selected and organized; (2) the facts shown by the use of the scale preliminary to its revision; (3) a criticism of the scale in its present form; (4) some suggestions for its practical use.

The first list of significant teaching acts was collected by a class of graduate students in the Department of Kindergarten-First Grade Education, Teachers College, Columbia University, that was making a study of problems of public school supervision. As a part of their investigations of supervisory duties, each of these students surveyed three school situations,—one nursery school, one kindergarten, and one first grade, using the Reed Score Card. One phase of this survey required a three-hour observation in each classroom during which a running account or diary record was

made of everything that transpired. Incidental to this survey, each student was asked to select from the record of each teacher observed the five teaching acts which, in her judgment, were most indicative of the worth of the teacher; write them out in detail, and tell why each was selected as significant.

When these items were condensed and stated in comparable terms, they presented a complicated problem for classification, but invariably it was evident that they were selected as significant because of some principle which they exemplified or violated. Neither the principles nor the significant teaching acts selected by the graduate students could be organized into a unified check list or scale, but they furnished a valuable nucleus for further investigation because they represented the judgments of forty-six capable people on the significance of certain aspects of the performance of thirty-two teachers observed for three hours each. There was considerable agreement between the reports of individuals who observed the same teachers on the type of acts reported as significant of the ability of those teachers. Study of the reports gave an intelligible picture of the teaching performance of these teachers to one who did not know their work at all. The task of the writer has been to formulate principles by which those items which were most useful could be selected and others eliminated; to accumulate enough typical teaching acts and state them in such terms as to give them universal application; to determine by means of principles which acts gave promise of efficient teaching and which of inefficient teaching, and to select a form convenient for use in checking the observed procedure of other teachers.

The organization decided upon was that which calls the attention of the observer to the educative experiences of the everyday life of the children. The reason for this and the principles which governed selection and scaling of items have been discussed at length in the preceding chapter and will not be repeated here. A straight-line scale was adopted for recording the rating of each teacher because of the ease with which degrees of ability can be indicated upon it by the rater. Five points were placed one inch apart on the scale line.¹ Points one and two represent undesirable teaching; points four and five, highly desirable practice; point three, a neutral mid-point. All points except the mid-point were

¹ For convenience in the present printed form, the scale line has been reduced to 4 inches and divided into 5 equal sections.

defined in terms of observable teaching acts selected as typical of what might be seen in any classroom. It was assumed that the rater would find teaching procedure similar enough to that described to enable him to place the work of the teacher on the scale more objectively than would be possible without the descriptions. In order to secure as accurate a picture of teaching procedure as possible, the writer selected the teaching acts used in the scaled analysis from diary records of many hours of classroom observation made in former years by graduate students in the Department of Kindergarten-First Grade Education, from those suggested by many hours spent in observation herself, and from those derived by wide reading of books on early elementary education.

When this analysis was completed, it was submitted for use and criticism to the class of graduate members who had made the earlier diary records. At the time there remained in the class thirty-four students who had made observations and records of twenty-four teachers. From the objective evidence contained in these records, they rated these teachers on the scaled analysis. They were asked to criticise the instrument they had used in any way which occurred to them as well as through the various specific ways that were suggested. These marginal criticisms were discussed with the class and taken into account in later revision.

DEGREE OF ADAPTATION TO THE THREE SCHOOL GRADES

The class was equally divided in opinion as to the relative adaptation of the scale to the nursery school and to the other two grades. Several factors entered into the consideration of this point. The nursery school teachers who had been rated, as a group, rated higher than the kindergarten and first grade teachers. The selection of this group, however, was such as to cause one to expect this result. None the less, the fact that there were one or two nursery school teachers who scored low on the scale was indicative that it could be used to discriminate between nursery school teachers. Some of the raters pointed out that the regime for physical care in the nursery school was necessarily of high standard because of the immaturity of the children and would, therefore, approach more nearly the high standard of performance defined on the scale. Certain criticisms pointed out that the immaturity of the children in the nursery school might act as a handi-

cap to the ratings of the nursery teacher where items related to the cultivation of self-direction, initiative, self-help and similar qualities in which the kindergarten and first grade children would naturally excel. It was noted that the nursery school teachers observed had fewer children in their groups and better and more spacious surroundings than did the others, and that these conditions might so free them that they could do better work than they might do otherwise.

In revising the scale, these points of discussion were taken into account and, in so far as seemed wise were allowed to influence the revision. The standards in all items were kept high, although allowance was made for the immaturity of the nursery school child; and, therefore, the point of view was adopted that teaching, not teachers, was to be evaluated, and that if instruction were of poor quality, even though the cause thereof be crowded conditions and poor surroundings, it was still poor teaching. The teacher might be capable of doing better under more favorable circumstances. Most persons are. Just rating must, however, be on actual achievement, not on theoretical promise. This decision seemed the wiser in light of the consideration that if the nursery school has a contribution to make to educational procedure by its standards for the physical and mental health of the children, it is well to apply those standards to the grades beyond rather than to lower the standards.

INFLUENCE OF THE WORK OF ONE TEACHER UPON THE SCORE OF ANOTHER IN THE SAME ROOM

There is probably no doubt that two teachers working in the same room have an influence on each other's scores. This is minimized in the cases of teachers whose work is separated from period to period in different rooms or play spaces. One case was conspicuous in the study of a nursery school assistant who had independent and responsible duties throughout the morning of the observation and who consistently scored higher than her director, although at certain points her graph line conformed in general shape to that of her director.

UNIFORMITY OF WIDTH OF STEP INTERVALS ON THE SCALE

Certain of the graduate students suggested that points one and two on the scale were both described as poor teaching, and they

questioned the wisdom of this ranking. This query was referred to several experts in supervision and, without consulting with each other, these experts agreed that the teacher described at point two, who was awake to the needs of the children although she was meeting them in the wrong way, was a step above the teacher who was oblivious of their needs and demands. In the judgment of these supervisors her chances for improvement were better than were those of the teacher placed at the lowest point on the scale. Two or three isolated points on the scale were indicated as needing further definition in order to place them at uniform distances from each other. This was done in the revision.

AMPLIFICATION OF ILLUSTRATIONS

Many valuable illustrations were added to the analysis by the graduate students and still more by the several supervisors in service who made critical use of the original instrument. These were incorporated in the revision and have made it clearer and better adapted to general use.

TEACHERS' COÖPERATION WITH PARENTS AND COWORKERS

The scale was given to six supervisors in service, who were not included in the graduate class, for their use and criticism in anticipation of its revision. These supervisors were less concerned with the criticisms which have just been discussed than were the graduate students. They were more concerned with the difficulty of evaluation of the teacher's coöperation with parents and coworkers and with the additional difficulty of discerning those personality traits which contribute to social coöperation. Certain items of evidence on this general ability which had been included in the original analysis, such as the ways in which the teacher co-operated with the home in matters of the physical care of the children and the way in which she secured the help of experts in the interpretation of children's personality difficulties, had been questioned by the graduate students because they could not be ascertained by classroom visitation. The advisability of confining the scale to those objective activities observable in the classroom outweighed the desire for complete analysis, and in revision only those observable things which might appear in the teacher's work as indicative of her coöperation with coworkers and parents were retained as possible evidence to be secured.

PERSONALITY TRAITS

No personality traits of the teacher are listed in the analysis. Disagreement arose between the raters relative to this point. Certain members of the group deplored the fact that the personality of the teacher could not be rated. Others maintained that the personality of the teacher was being rated when judgment was made of the effectiveness of her various teaching acts. The scale was not revised in this respect. The policy was maintained that because vaguely defined traits have been found in other scales to be inaccurate bases for rating, in this study the qualities of personality in the teacher would be disregarded except when they emerged from objective teaching acts.

IMPLICATIONS FROM STUDY OF SCORES

For purposes of scoring, each of the five-inch scale lines was divided into quarter inches and each quarter of an inch assigned a score. This division was arbitrarily decided to be sufficiently close discrimination for present purposes. Each teacher's score on the thirty-two items of the scale was then graphed. These graphic pictures of strong and weak points in teaching were so revealing that the advisability of assembling the scale lines separately from the context of the definitions so that the graph would appear immediately on rating was considered. This plan was abandoned for the present study, however, for fear that the obviousness of the graphic picture might tend to smooth ratings which otherwise would be more objectively discriminating. This theory was not checked by experiment but was put into practice in the present studies.

The graphic pictures indicated that, according to the estimate of these raters, there were about as many good teachers as poor ones among the twenty-four who were rated. As a test of the effectiveness of each item in the analysis, therefore, the scores of all the teachers on each item were averaged separately. It was assumed that if the study included a fairly well distributed range of teaching efficiency, the averages of all scores on each item would fall somewhere around the mid-point, three, and that those averages which were considerably higher or lower than three meant that their items were not well defined. The averages of twenty-six out of the thirty-two items were found to lie around the mid-point of three. Of the remaining six averages all fell in the vicinity

of four. One of these items was taken out of the scale, and the other five were redefined according to the combined suggestions of the various raters.

Twenty-one of the twenty-four teachers had been observed and rated by two or more raters. Of these, thirteen had five or more duplicate ratings and one had as many as fifteen. The range of scores assigned the same teacher on the same item by different raters was tabulated. On twenty-five of the thirty-two items there was an agreement within one inch or less on the scale line by 70 per cent or more of the duplicate ratings. Of the remaining seven items, there was only one on which the agreement on the rating of the teacher on the scale point as defined fell below 63 per cent. Careful attention was given to the revision of these seven items. In some cases the reason for the high variability appeared obvious; in others it was less tangible.

The letter Z was assigned to items for which no evidence was found during the observation and for which no score could be given. Those items having a high percentage of Z scores were especially investigated. The reason for this irregularity was sometimes apparent in the definition but more often was ascribable to accidents of unfavorable position of the rater in the room at the time of observation or unfavorable sampling of the day's program. It was surmised, too, that a Z score in certain instances indicated a lack of recognition of the importance of the experience represented by certain items. Three items which had a high percentage of Z scores and which were conspicuous for one or the other of the irregularities previously mentioned were given careful attention in revision.

The final analysis had twenty-eight items, whereas the original form contained thirty-two. The only instance of condensation which needs defense here is that in which social skills, reading, writing, number and spelling are rated on one scale. The original instrument had a scale line for each of these. Every one of the twenty-four teachers had a Z score for spelling. Z scores for the other social skills were numerous and confusing. Obviously, in the nursery and kindergarten at least, evidences of direct teaching in these subjects are limited. However, such environment and experiences as give a meaning and motivation to reading, writing, number and spelling are important and observable. A graphic comparison of the separate scores on each of these items

for the twenty-four teachers showed that the teachers who scored high or low in one had a corresponding score in the others. The conclusion was then drawn that a combined score on the social skills to include reading, writing, and number was both practical and just, and the combination was made. A separate scale was then added for the rating of the teaching of reading to be scored for the reading group.

This thoroughgoing criticism of the original scale produced much evidence and was of importance in organizing the final experiment: (1) It gave some assurance of the validity of the instrument. (2) It revealed certain tendencies of raters which indicated what printed directions would be necessary in order to safeguard rating.

VALIDITY

Before experimenting further with this instrument, its worth as a standard for teaching was carefully considered. Two reasons for assuming that the scale was valid seemed pertinent. The first of these was that it was made on the basis of a list of principles of education agreed by educational experts to be warranted bases of procedures that constitute good teaching. The second claim for validity is founded on the fact that an original scale was submitted for use and criticism to forty people trained in the evaluation of teaching. The present scale was revised on the basis of their criticisms. These considerations do not, however, give a numerical measure of the extent of the validity of the instrument. Correlation of the test scores with a reliable criterion would produce such an index. No such criterion was available, but correlation with a hypothetical criterion, the square root of the reliability, has been taken in other studies as a measure of the validity.² In the final experiment, when the revised scale was used by supervisors in the field, the reliability was found to be $+ .97$ and the validity, therefore, $+ .98$.

DIRECTIONS FOR RATING

Every effort was directed toward the safeguarding of objectivity in rating. The preliminary experiment indicated what printed directions were necessary to accomplish this. Raters were asked to familiarize themselves with the contents of the scale, visit the teacher for one half day, and rate the work observed during the

² Hartshorne, Hugh and May, Mark A. *Studies in Deceit*. Book I, p. 142; Book II, pp. 118-21. Macmillan Co., 1928.

ensuing eight hours after the visit. Supervisors were asked to do everything in their power to keep the situation as normal as possible during their observations. They were asked to keep the teachers in ignorance of the nature of the scale and the purpose of the visit. This regulation was thought necessary for the purposes of the experiment, although in practical use the teachers should be able to coach on the scaled analysis to the distinct advantage of their work.

The directions for scoring repeatedly indicated the necessity for basing ratings on objective evidence. Supervisors were directed to take full notes during their visits and to place the teacher's score on the scale line according to the evidence secured. It was pointed out that ratings must conform to the definitions of the scale points even though the raters might disagree with the location of the definition on the scale line. Where the performance of the teacher produced contradictory evidence, the rater was asked to decide on the basis of frequency which teaching acts were most typical of the teacher's work and place the rating accordingly.

In order to avoid Z scores, the score given to items for which no evidence was secured during the observation, raters were allowed to rate the teacher on the basis of evidence which they were able to recall from former visits. These scores, however, were specially designated. Similarly, special notation in the rating was given to the teacher's methods of regulating situations which were not wholly within her control. These rules were thought to add to the objectivity of rating. No special treatment was given to these scores. Explanation was made in a former chapter of the position taken in this study with regard to the effect of unfavorable school conditions on the score of the teacher. It has been maintained throughout this study that it is the teacher's actual performance which is being scored, not her potential ability. Opportunities given raters to make special designation of exceptional cases were provided in order to facilitate accurate rating.

The time assumed to be necessary for a reliable observation in this study was one-half day. In practical use, however, the writer predicts that the analysis will lend itself to considerable flexibility in use for visits of varied lengths of time. Teachers and supervisors should coöperate in using the scale for improvement of teaching. The scale should offer a common basis for understanding the application of fundamental principles to teaching.

CHAPTER IV

EXPERIMENTAL USE OF THE REVISED ANALYSIS

After the revision of the analysis of teaching presented in this study was completed, it was put into service by a large number of competent raters in order to reveal its value for practical use. It was apparent that the following lines of investigation were desirable: (1) the accumulation of evidence as to the adaptability of the instrument for use by many raters in diverse situations, (2) a measure of its objectivity when used by more than one rater after observation of the same teaching, and (3) a determination of the reliability of the instrument.

SELECTION OF RATERS

In order to accomplish these purposes, it was arranged to have the scale used by eighty supervisors distributed over the United States, and by two classes of graduate students in Teachers College, Columbia University, who made it an incidental part of their college courses dealing with the problems of teaching and supervision. Each of these classes followed a different method of procedure in treating the problem. For convenience, reference will be made to these raters as Groups I, II, and III.

Group I. The supervisors who contributed to the study were selected on the basis of their interest in the study and their expressed desire to do the work involved. At the outset a roster of supervisors was submitted to three or four widely acquainted instructors in Teachers College who indicated the names of those whom they thought to be willing to cooperate. Letters were sent asking the assistance of those thus selected and scales were given to those supervisors who replied in the affirmative. Eighty persons finally contributed ratings. The range in their positions is shown:

Public school supervisors	43
School principals	16
Supervisors on the staff of colleges and universities	19
Volunteer workers	2

The 34 city school systems and 15 colleges and universities from which the data were accumulated were widely distributed over the United States. The advantages of such distribution are easily apparent. It offered an opportunity to test the scale in a variety of representative school situations over which the personality of the writer could have no influence. The scale was also subjected to a sufficiently varied and significant sampling of school conditions. This group of supervisors contributed single ratings on 231 teachers. Thirty-five other teachers were scored by two or more raters working independently, and fourteen teachers were rated twice by the same supervisors with an interval between ratings of from four to eight weeks.

The directions given to the supervisors who obtained the ratings were very specific. They were instructed to choose their teachers indiscriminately for they were told that the writer desired to include both good and poor teachers in the study. There is reason to suppose, however, that teachers who work under supervision of any sort, and especially under supervisors progressive enough to coöperate in such a research as this might be of a quality above the average.

Group II. The second group was composed of the class of graduate students who contributed the data for the preliminary experiment. They re-rated on the revised scale the same teachers whom they had scored earlier on the original instrument. As a basis for this rating, they used the same objective evidence which they had recorded for the earlier study. These students were majoring in the supervision of nursery school, kindergarten, and first grade, and the personnel of the class included public school supervisors, school principals, and college supervisors of practice teaching. They might be considered as experienced workers, since all of them had been specifically trained in analyzing and judging teaching before they rated with the scale for the present study. The technique for observation and recording used by this group has been described in the account of the preliminary experiment and need not be repeated here.¹

Because several of these students observed and scored the same teachers, the data which they contributed were of exceptional value in estimating the objectivity of the scale. It was also illuminating to discover from these data how well the scale could be used after a period of three hours of observation of teachers previously

¹ See pp. 33-35.

unknown to the raters. The teachers scored were also described in the account of the preliminary study. The nursery school teachers were those having more or less direct supervision from Teachers College. The other teachers were an unselected group in the public schools in towns adjacent to New York. There were thirty-seven raters in this group scoring thirty teachers.

Group III. Another class of graduate students rated teachers on the scale. This class was divided into two sections. Each section used a different method of recording evidence in the classroom as a basis for rating. All members of the group had received careful training in objective recording of classroom procedure, since a period of practice had been given during which records taken were rigorously criticised from the standpoint of their comprehensiveness and objectivity. One section then recorded everything which certain teachers did during a three-hour period. The other section made records of individual children during a period of similar length. Each student scored the teaching in the situation where she had done recording. As a basis for scoring the teaching, the members of these two sections used the evidence recorded in both children's and teachers' records. These students did not know the nature of the scale, nor did they know when the observations were made that they would be asked to evaluate the teaching observed.

While the data from this group were collected for the purposes of giving students training in the evaluation of teaching rather than for the sake of this study, the results have been incorporated here because they offer some evidence of the way in which objective records can be used as a basis for rating whether or not the rater has made specific observations of the activities of the teacher for the express purpose of making a rating. As a result of their observations, this group contributed seventy-four ratings on thirty teachers. The teachers studied were those in private schools of a superior order.

TREATMENT OF DATA

Each group of raters followed the specific directions for rating which preface the scale. Score values were assigned to the ratings of each group by identical methods.² The data thus derived, however, have received separate consideration. On the five-inch scale

² The scale as reported here has twenty-seven items instead of twenty-eight. Item XXVIII, Reading, which was scored for the reading group only, was thrown out of all computations because it could not be rated for all teachers.

line each of the five points defined was allocated one inch. The rater might indicate degrees of efficiency to any desired subdivision of the length. For the sake of securing a fine interpretation of this discrimination, each line was divided into quarter inches. Ratings falling within each quarter of an inch were assigned scores. This procedure converted the five point scale into one of twenty points. In the data reported, the whole number in each score indicates the mid-point of the inch to which it was assigned on the scale line. The decimal represents the location of the score above that point in terms of a fraction of an inch. Thus a score of 4.75 means that the rating was placed on the scale line three-quarters of an inch above the mid-point of the inch which bears the number 4. It lies, therefore, in the first quarter of the inch which is numbered 5. This method of scoring has been adopted for the purpose of facilitating computations in this study.

MEANS OF SCORES OF EACH ITEM OF THE SCALE

Ratings made by supervisors in the field on 231 teachers were carefully studied in order to discover how well the scale applied to practical situations. Of the 231 teachers, 30 were nursery school teachers, 98 were kindergartners, and 103 were first grade teachers. Table I shows that the mean of all scores assigned on each item of the scale fell above the mid-point of three on the five-inch scale line. Means were computed from the actual scores excluding the cases where no evidence was secured that might be a basis for rating. In the nursery school group the means of scores on items ranged from 4.02 to 5.05 with standard deviations of .46 to 1.23. The range of means for the kindergarten group on the various items was from 3.84 to 4.81 with standard deviations ranging from .95 to 1.34. The scores on the different items averaged slightly lower for the first grade group, from 3.62 to 4.52, with a range of standard deviations from .76 to 1.06.

The data thus compiled give evidence that ratings on the scale secured for this study tended to mass toward the upper end of the scale line. The average of all scores given to the nursery school teachers was 4.45 to the kindergarten teachers 4.05, and to the first grade teachers 3.99. There was little difference in the ratings assigned to kindergartners and to first grade teachers on the average, but a slight tendency was shown to rate the kindergarten teachers higher. The nursery school teachers averaged .44 higher

TABLE I
MEANS AND STANDARD DEVIATIONS OF SCORES ASSIGNED
BY SUPERVISORS TO 231 TEACHERS
ON EACH ITEM OF SCALE

ITEM	30 Nursery School Teachers		98 Kindergarten Teachers		103 First Grade Teachers	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
I. Habits of Cleanliness in School	4.82	.78	4.81	.95	4.26	.89
II. Physical Conditions of Room	4.76	.60	4.14	1.03	4.21	.78
III. Habits of Personal Cleanliness	4.82	.63	4.40	.99	4.23	.84
IV. Regulation of Wraps ..	5.05	.46	4.46	.96	4.46	.93
V. Out-of-door Play	4.78	.65	4.17	1.17	3.95	1.06
VI. Protection from Danger	4.72	.76	4.41	1.11	4.25	.97
VII. Postural Habits and Development	4.38	.67	3.84	1.07	4.00	.88
VIII. Prevention of Contagion	4.97	.62	4.25	.99	4.22	.88
IX. Habits of Eating	4.34	1.05	4.21	1.23	4.00	.86
X. Habits of Rest	4.72	.93	4.15	1.06	3.62	.87
XI. Elimination	4.92	.65	4.14	1.11	4.18	.85
XII. Social Organization ...	4.54	.97	4.45	1.00	4.23	.90
XIII. Social Adjustment	4.56	.83	4.34	1.08	4.06	1.00
XIV. Emotional Adjustment	4.66	.79	4.20	1.00	3.99	.99
XV. Arrangement of Room for Work and Play ...	4.48	.71	4.44	.96	4.06	1.06
XVI. Creative Use of Materials	4.29	.80	4.32	1.04	3.97	.97
XVII. Problem Solving	4.27	.89	4.12	1.12	4.05	.94
XVIII. Stimulating Experiences	4.58	.84	4.25	1.10	4.18	.85
XIX. Interpretation of Social Life	4.57	.69	4.15	1.02	4.02	.90
XX. Interpretation of Nature	4.57	.61	4.13	1.02	4.04	.90
XXI. Dramatic Play	4.31	.80	4.06	1.05	4.16	.97
XXII. Singing	4.16	.91	4.15	1.05	4.11	.82
XXIII. Rhythmic Expression .	4.24	1.07	4.24	1.08	3.94	.97
XXIV. Drawing and Painting .	4.24	.75	4.05	1.05	3.97	.83
XXV. Literature	4.56	.48	4.08	.98	4.23	.86
XXVI. Language Expression ..	4.62	.94	4.19	1.05	4.17	1.01
XXVII. Social Skills	4.02	1.23	3.99	1.34	4.52	.76
Average	4.45	.78	4.05	1.06	3.99	.91

Note: The whole number in each score indicates the mid-point of the inch to which it was assigned on the scale line. The decimal represents the location of the score above that point in terms of fractions of an inch.

than the first grade teachers and .40 higher than the kindergarten teachers. The average standard deviation of scores on each item for the nursery school teachers was .78, for the kindergarten teachers 1.06, and for the first grade teachers .91. There was among the raters of nursery schools a tendency to pile up scores at one point on the scale rather than to give them such spread as was apparent in the ratings on the other group of teachers.

RANGE OF SCORES USED FOR INDIVIDUAL TEACHERS

The range of scores attained by individual teachers on the twenty-seven items of the scale is of interest and importance in judging the discriminating value of the scale. Each teacher's mean score was computed by adding the scores assigned, and dividing by the actual number of scores, exclusive of the items for which no evidence was secured. The range of mean scores for individual nursery school teachers was 2.80 to 5.31, for kindergarten teachers 1.53 to 5.32, and for first grade teachers 2.54 to 5.31. When the range of each teacher's scores was compiled, it was found that the individual nursery teachers' ratings tended to fall within a narrow compass. The kindergarten teachers appeared to have a wider range, and the first grade teachers slightly more of a spread. Table II shows that the individual ratings of 30 per cent of the nursery school teachers on the twenty-seven items had a range of one inch or less on the scale line, while 17 per cent of the kindergarten teachers had a range of scores within one inch on the scale line, and that only 4 per cent of the first grade

TABLE II

RANGE OF SCORES USED BY SUPERVISORS IN INDIVIDUAL RATINGS ON
231 TEACHERS

Range of Scores on 5-Inch Scale Line	30 Nursery School Teachers		98 Kindergarten Teachers		103 First Grade Teachers		Total	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
4 to 5 Inches	1	3	4	4	5	4	10	4
3 to 4 Inches	3	10	12	12	24	23	39	17
2 to 3 Inches	8	27	32	33	29	28	68	30
1 to 2 Inches	9	30	33	34	40	39	82	35
Less than 1 Inch	9	30	17	17	5	4	32	14

teachers had so limited a spread of scores. When all 231 cases were considered, 50 per cent of the records of individual teachers had a range of scores on the twenty-seven items covering two inches or less of the scale line, while the scores of the remaining 50 per cent had a wider spread than two inches. Only 21 per cent of the cases used more than three inches of the scale for any one teacher, and only 4 per cent used more than 4 inches.

LOCATION OF LOWER AND UPPER LIMITS OF INDIVIDUAL SCORES

A summary was made of the lower and upper limits of the individual scores of the 231 teachers rated by the supervisors in the field. Table III shows the exact distribution of the lowest and highest scores assigned to the individual teachers in nursery school, kindergarten, and first grade in this group.³ A conspicuous tendency toward the use of the upper end of the scale line was apparent. However, the lower limit of the scores of 21 per cent of these teachers fell in the lowest inch on the scale; 17 per cent in the inch next above. The extreme positive end of the scale, 4.75 to 5.50, was assigned as the upper limit of the record of 84 per cent of the cases rated in this group.

There may be certain reasons for the obvious tendency toward high rating shown in this study. The teachers rated may be a selected group with ability above the average of the general teaching population. The supervisors may not have been sufficiently discriminating as raters, or the scale may be so constructed that point 4, as described, rather than point 3, fits the average teacher. It may be that to fit the teaching population a scale should be so constructed. Teachers in general, because of selective factors of training and competition, may properly rate above the mid-point of a scale based on all ranges of efficiency.

From the first, it was recognized that the supervisors contributing to this study were of a superior order, since several discriminating factors had entered into their selection. It appears logical, therefore, that the teachers under their supervision would also be of a superior order because of careful appointment as well as by virtue of the intelligent direction under which they work. In an effort to discover by means of another measure whether or not these were superior teachers, a general estimate on a scale of five points (poor, fair, average, good, and excellent) was requested

³ Data on the means and range of individual scores obtained by the three groups are given in Tables XV to XVII in the Appendix, pp. 117 to 123.

TABLE III

LOCATION OF LOWER AND UPPER LIMITS OF SCORES ON INDIVIDUAL RECORDS
OF 231 TEACHERS

Score	Lower Limits of Range								Upper Limits of Range							
	30 Nurs- ery		98 Kind- g'n		103 1st Grade		Total		30 Nurs- ery		98 Kind- g'n		103 1st Grade		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4.75-5.5 . . .	1	3	3	3	3	3	7	3	29	97	77	78	89	88	195	84
3.75-4.5 . . .	13	43	22	22	12	12	47	20	1	3	19	19	14	12	34	14
2.75-3.5 . . .	11	37	38	39	39	38	88	38			1	1			1	.4
1.75-2.5 . . .	1	3	11	11	27	26	39	17			1	1			1	.4
.5 -1.5 . . .	4	13	24	24	22	21	50	21								

from all supervisors on all teachers rated. It was recognized, of course, that general estimates of teaching are highly subjective, but it was thought that this additional evidence was worth the effort to secure it. When these general estimates were submitted, 75 per cent of the teachers rated on the scale had been given a general estimate also. A correlation between them and the ratings on the same teachers by the scale proved to be $+.81 \pm .02$. The magnitude of this correlation gives corroboratory evidence that by another measure the teaching ability of this group ranks higher than average.

The best evidence that we have, however, of the discriminating value of the scale on the lower levels is that produced by the preliminary experiment in which both good and poor teachers were rated. The average scores on each item were computed and found to lie very slightly above or below the mid-point of 3 except in the case of six items, one of which was thrown out of the scale. It may be valid to infer from these two sets of evidence that the lower reaches of the scale are necessary in order to measure all degrees of teaching efficiency found in the teaching population, but that the average of a well supervised group of teachers may be expected to fall above the mid-point of the scale.

DISTRIBUTION OF Z SCORES

A Z score was assigned to each item on which the rater had observed no evidence. This rating meant simply that the teacher

TABLE IV
DISTRIBUTION OF Z SCORES ON INDIVIDUAL ITEMS OF THE SCALE

ITEM	Group I 231 Ratings by Supervisors			Group II 96 Ratings by Students			Group III 74 Ratings by Students		
	30 Nurs- ery	98 Kgn.	103 1st Gr.	35 Nurs- ery	34 Kgn.	27 1st Gr.	19 Nurs- ery	32 Kgn.	23 1st Gr.
I. Habits of Cleanliness in School	0	0	0	1	0	0	0	0	2
II. Physical Conditions of Room	1	0	1	1	1	0	8	3	9
III. Habits of Personal Cleanliness	0	0	2	0	2	2	1	2	1
IV. Regulation of Wraps	1	1	2	0	5	9	4	3	11
V. Out-of-door Play	2	6	14	3	23	20	2	7	14
VI. Protection from Dan- ger	2	0	4	2	14	13	1	5	9
VII. Postural Habits and Development	1	2	0	2	1	2	5	12	10
VIII. Prevention of Conta- gion	2	11	4	3	14	11	3	13	14
IX. Habits of Eating	0	17	30	1	7	7	1	3	1
X. Habits of Rest	0	3	14	0	4	2	10	3	6
XI. Elimination	0	3	4	2	6	9	2	9	10
XII. Social Organization ..	1	2	2	0	2	0	0	0	0
XIII. Social Adjustment ...	0	2	0	0	1	1	1	2	0
XIV. Emotional Adjustment	1	1	0	2	5	4	0	6	8
XV. Arrangement of Room for Work	0	0	0	2	0	0	3	1	3
XVI. Creative Use of Mate- rials	0	0	0	4	1	0	5	0	1
XVII. Problem Solving	4	1	0	0	0	0	3	2	2
XVIII. Stimulating Experi- ences	1	0	0	0	1	1	7	2	2
XIX. Interpretation of So- cial Life	2	6	1	3	4	3	8	2	3
XX. Interpretation of Na- ture	5	5	3	7	5	3	13	7	7
XXI. Dramatic Play	3	3	4	1	9	12	3	7	13
XXII. Singing	8	3	11	18	8	14	9	13	21
XXIII. Rhythmic Expression	7	4	18	19	8	17	12	11	22
XXIV. Drawing and Painting	7	3	4	20	3	3	13	3	8
XXV. Literature	6	6	8	13	6	9	14	8	8
XXVI. Language	0	0	0	0	0	0	1	0	0
XXVII. Social Skills	18	12	1	9	8	3	13	8	0
Total	72	91	127	113	138	145	142	132	185
Average	2.4	.92	1.23	3.23	4.05	5.37	7.47	4.11	8.04

Note: A Z score means that the rater found no evidence as basis for scoring the item to which it is assigned.

had not been observed to do any of the things described under the headings bearing this score. These scores, therefore, were thrown out of all computations of averages. Table IV shows that the average number of cases where no evidence was found was considerably less for ratings by supervisors than for ratings by the graduate students in Groups II and III. The chief reason for this is probably that the supervisors were better acquainted with the work of the teachers rated than were the students who based their ratings on one observation only. While supervisors visited their teachers for a half day previous to rating, they were permitted to draw upon evidence gained during former visits. This decreased the number of Z scores assigned by Group I. Nevertheless, there appears to be no consistent variation in the number of Z scores assigned to nursery school, kindergarten, and first grade teachers by the three groups of raters. Yet the nursery school teachers rated by the supervisors would have had a considerably lower number of Z ratings had it not been for the Z's given to the item "Social Skills." It is assumed in the analysis that the experiences and activities of the nursery school should build up a basis for understanding the meaning of the social skills which will be acquired when the children are more mature. This item is so defined that it should be scored for both kindergarten and nursery school even though the school arts are not taught in these grades.

The students in Group III who used two different methods of collecting evidence for rating showed no consistent difference in the number of cases of "no evidence." Those in charge of the experiment anticipated that the students rating teachers on the basis of records of teachers written by classmates would have a larger number of Z scores than those who observed the teachers more specifically. This did not appear. There was no evident relationship between the method of collecting the data and the number of Z scores assigned. The total number of ratings by the group has, therefore, been used in this report.

Several reasons appear for the large number of cases of "no evidence" found by the students. The most obvious was that they were able to rate only on the basis of the work observed in a period of three hours. Moreover, it was sometimes difficult for them to collect evidence because they were situated in an unfavorable position in the room. Table IV, however, shows a tendency

for students to assign a large number of Z scores to several of the same items for which supervisors also tended to find no evidence. The fact that these items vary rather consistently for the three grades will be commented upon later in an attempt to interpret results.

OBJECTIVITY

Each group of raters contributed a representative number of ratings by two or more judges on the work of the same teachers. These duplicate ratings were treated in several different ways in order to discover the objectivity of the scale when so used. The most serviceable technique employed for showing the agreement between raters was that of computing the average differences between ratings made on the same teachers.

Table V shows the average differences in ratings made in duplicate by Groups I and II. Certain teachers were rated by several judges, others were given two ratings. The supervisors in Group I made eighty-four ratings on thirty-five teachers; Group II, ninety-six ratings on thirty teachers. The average differences were computed by comparing each rating with every other rating made on each item for any one teacher. The differences are expressed in terms of fractional parts of an inch on the scale line.

There appears to be a closer agreement between the ratings of the supervisors in the field than those made by the graduate students whose judgments were based on evidences gained on one three-hour visit. Except in the case of Item VIII, the average agreement between the supervisors' ratings is represented by less than three-quarters of an inch in the scale line. On the average the ratings by students in Group II fall within one inch on the scale line. On three items only do the averages exceed one, and in those cases, only by a small fraction.

The average differences in scores assigned to the same teachers by the duplicate ratings by Group III were given special attention because the two sections of this class used different methods of collecting evidence (Table VI). Each rating which had been made by a rater who had specifically observed and recorded the teacher was compared with the ratings made on the same teacher by classmates who had not made such records. In this case, the average differences in judgments are even lower than those made by the students in Group II. In these data, however, the students had resorted to a liberal use of the Z scores. This lowered the

TABLE V

AVERAGE DIFFERENCES IN DUPLICATE RATINGS BY TWO OR MORE JUDGES

ITEM	GROUP I. SUPERVISORS				GROUP II. STUDENTS			
	Nurs- ery 8 Rat- ings 4 Teach- ers	Kgn. 41 Rat- ings 16 Teach- ers	First Grade 35 Rat- ings 15 Teach- ers	Aver- age	Nurs- ery 35 Rat- ings 14 Teach- ers	Kgn. 34 Rat- ings 8 Teach- ers	First Grade 27 Rat- ings 8 Teach- ers	Aver- age
I. Habits of Cleanli- ness in School ...	.25	.58	.88	.57	1.05	.84	.75	.80
II. Physical Condi- tions of Room ...	.25	.95	.83	.67	.80	.72	.87	.80
III. Habits of Personal Cleanliness	.19	.55	.76	.50	.65	.95	1.05	.87
IV. Regulation of Wraps	Z	.60	.48	.54	.47	.82	1.02	.77
V. Out-of-door Play	Z	.58	.54	.56	1.02	.77	Z	.90
VI. Protection from Danger	Z	.48	.75	.61	.67	.70	1.05	.80
VII. Postural Habits and Development	.63	.58	.58	.59	.80	.84	.87	.82
VIII. Prevention of Con- tagion	.63	.76	1.20	.86	1.05	1.32	1.25	1.22
IX. Habits of Eating.	.57	.36	.82	.58	.70	1.12	.77	.84
X. Habits of Rest ..	.57	.54	.48	.53	1.00	1.12	.95	1.02
XI. Elimination	.44	.61	.79	.61	.67	1.07	1.17	.97
XII. Social Organiza- tion	.44	.52	.47	.47	.90	.84	.65	.80
XIII. Social Adjustment	.50	.44	.47	.47	.82	.67	.77	.75
XIV. Emotional Adjust- ment	.57	.41	.57	.52	.57	.55	.72	.59
XV. Arrangement of Room for Work .	.44	.44	.56	.48	.85	.97	.84	.90
XVI. Creative Use of Materials	.32	.52	.44	.43	.90	.90	.70	.82
XVII. Problem Solving .	Z	.61	.66	.62	.80	.72	.57	.70
XVIII. Stimulating Expe- riences	.32	.38	.42	.37	.90	.75	.97	.87
XIX. Interpretation of Social Life	.62	.46	.55	.54	.92	.82	.80	.84
XX. Interpretation of Nature	.42	.64	.53	.53	1.15	.75	.72	.87
XXI. Dramatic Play ..	.62	.46	.52	.53	.82	1.00	.80	.87
XXII. Singing	Z	.60	.69	.64	.52	.72	1.05	.80
XXIII. Rhythmic Expres- sion	Z	.49	.54	.51	.90	.57	.80	.75
XXIV. Drawing and Painting	.87	.46	.52	.62	.87	.77	.65	1.09
XXV. Literature	.67	.66	.42	.58	.59	1.00	.75	.77
XXVI. Language	Z	.46	.66	.56	.77	.65	1.52	.97
XXVII. Social Skills	Z	.42	.59	.47	.65	.80	.57	.67

Note: Z scores assigned in these columns indicate that because there were Z scores on these items the number of comparisons possible were too few to make an average significant.

number of possible comparisons on certain items, making the averages less reliable than those computed on the ratings by the supervisors where fewer instances of "no evidence" were reported.

Another method for discovering the objectivity of the scale when used by different raters on the work of the same teachers was that of correlating the average scores of each teacher as given by all possible pairs of raters. This was done on the data contributed by the supervisors in the field.⁴ The number of ratings on nursery school teachers was so small that no separate correlation on them was made, but they were used in the final r computed for all duplicate ratings. The coefficient of correlation computed on the duplicate ratings for the kindergarten teachers was $+ .75 \pm .03$; for the first grade teachers $+ .75 \pm .02$. When the ratings for all grades were combined the r for the 69 pairs of ratings⁵ was $+ .78 \pm .02$. It appeared that the relationship between the averages of individual scores given by two or more raters on the work of the same teachers was reasonably satisfactory as measured by the Pearson product-moment coefficient of correlation.

Further statistical exploration was made with both of these sets of data by correlating the scores given single teachers by separate pairs of raters. All items having Z scores were thrown out of these computations. The method of unlike signed pairs⁶ was used because of the ease with which it is operated. The correlation coefficient thus derived was transmuted into its corresponding product-moment r . Table VII shows the results of twenty-five such correlations between pairs of raters on first grade teachers and twenty-five such on kindergarten teachers. This is a sufficient sampling to show that, in spite of the fact that average differences on the duplicate ratings computed item by item are very small, the correlations computed item by item may range from $+ .95$ to a minus relationship. The reason for this discrepancy in results of two methods of comparison on the same data is that correlation takes into account consistency in trend of rating from item to item, while the computation of the average differences does not. In other words, neither of the judges in the pairs having low

⁴ Each teacher's average score was entered in the correlation table twice as X, Y and as Y, X because there was no distinct single basis for comparison of one measure against the other.

⁵ The P. E. for each of the coefficients of correlation reported for data entered twice in the correlation table, was computed on the basis of the number of scores actually correlated which is twice the number of paired ratings.

⁶ Thorndike, E. L. *Mental and Social Measurements*, p. 171. Teachers College, Columbia University, 1922.

correlations rated consistently higher or lower than the other throughout the scale. The differences in their ratings may not have been great in themselves, but there appears to have been a fluctuation in the relationship of the ratings to each other. In almost every case where correlations between pairs of ratings were low when computed item by item, the total scores assigned the teacher by the two raters were in very close agreement.

TABLE VI

AVERAGE DIFFERENCES IN RATINGS ON THE WORK OF THE SAME TEACHERS
BY STUDENTS USING CONTRASTING METHODS OF COLLECTING EVIDENCE

ITEM	Nursery	Kindergarten	First Grade	Average
	19 Ratings 5 Teachers ¹	32 Ratings 9 Teachers ²	23 Ratings 3 Teachers ³	
I. Habits of Cleanliness in School Situation	.60	.54	.38	.30
II. Physical Conditions of Room ...	.87	.68	.53	.67
III. Habits of Personal Cleanliness ...	.55	.53	.27	.45
IV. Regulation of Wraps	.75	.56	.34	.55
V. Out-of-door Play	.55	.33	.33	.40
VI. Protection from Danger	.62	.58	.54	.58
VII. Postural Habits and Development	.50	.91	.36	.59
VIII. Prevention of Contagion	1.00	.60	.08	.56
IX. Habits of Eating	1.07	.54	.20	.60
X. Habits of Rest	.50	.56	.48	.51
XI. Elimination	.35	.85	.69	.63
XII. Social Organization	.50	.82	.36	.56
XIII. Social Adjustment	.63	.86	.43	.64
XIV. Emotional Adjustment	.61	.50	.25	.45
XV. Arrangement of Room for Work ..	.40	.70	.25	.45
XVI. Creative Use of Materials	.65	.37	.30	.44
XVII. Problem Solving	.50	.61	.55	.55
XVIII. Stimulating Experiences	.75	.54	.26	.51
XIX. Interpretation of Social Life ...	.77	.68	.27	.54
XX. Interpretation of Nature	.33	.58	.25	.39
XXI. Dramatic Play	.77	.55	.45	.59
XXII. Singing	.80	.82	.18	.63
XXIII. Rhythmic Expression	.55	.80	.41	.59
XXIV. Drawing and Painting	.50	.52	.32	.44
XXV. Literature	.83	.65	.40	.63
XXVI. Language	.84	.83	.25	.64
XXVII. Social Skills	.25	.64	.42	.43

¹ 9 of these raters made objective records of teachers; 10 made records of individual children.

² 18 of these raters made objective records of teachers; 14 made records of children.

³ 12 of these raters made records of teachers; 11 made records of children.

From this account of the comparisons of the ratings made by two or more judges on the same teaching, it appears that the method of computing average differences item by item gives the most accurate idea of the agreement which is possible by the use of this scale. The evidence secured by such a comparison is quite satisfactory in this study since, on the average, the ratings submitted by two or more judges on the same teacher fell well within one-fifth of the scale line. Dr. Rugg⁷ maintains that to place an individual within his proper fifth is satisfactory as a criterion for rating.

TABLE VII
CORRELATIONS BETWEEN PAIRS OF DUPLICATE RATINGS ON THE WORK OF
THE SAME TEACHERS AS COMPUTED ITEM BY ITEM

KINDERGARTEN			FIRST GRADE		
Rater's No.	Teacher's No.	<i>r</i>	Rater's No.	Teacher's No.	<i>r</i>
65-66	247	+ .95	60-62	229	+ .64
56-55	225	+ .94	63-64	245	+ .64
52-56	226	+ .87	59-62	234	+ .61
14-15	59	+ .68	59-61	235	+ .59
65-66	248	+ .66	63-64	244	+ .58
56-58	222	+ .55	60-62	233	+ .56
14-15	63	+ .59	59-62	230	+ .54
52-57	220	+ .59	60-62	230	+ .43
55-53	220	+ .59	59-60	229	+ .43
52-54	219	+ .56	65-66	249	+ .27
52-55	226	+ .50	59-62	232	+ .25
55-56	226	+ .43	59-60	230	+ .19
53-54	219	+ .43	59-61	237	+ .16
22-28	108	+ .37	59-60	232	+ .13
52-53	219	+ .37	67-68	250	+ .13
65-66	249	+ .34	59-60	234	+ .13
53-55	224	+ .24	63-64	246	+ .08
70-35	272	+ .23	59-60	230	+ .06
14-15	56	+ .23	60-62	234	.00
53-54	235	+ .19	67-69	259	.00
56-53	220	+ .16	59-60	232	-.13
35-70	140	.00	59-62	232	-.13
53-55	250	-.02	59-61	236	-.35
54-55	251	-.19	67-69	251	-.35
56-55	220	-.46	60-62	232	-.37

Note: The table reads: The Coefficient of Correlation between the ratings made by raters 65 and 66 on the work of teacher 247, when computed item by item was +.95. Similar comparison between the ratings made by raters 55 and 56 on the work of teacher 225 resulted in an *r* of +.94, etc.

⁷ Rugg, H. O. "Is the Rating of Human Character Possible?" *Journal of Educational Psychology*, 12: 427, 1921.

RELIABILITY

The comparison of ratings on the same teachers by two or more judges may also be taken as evidence of the reliability of the scale. Another test of reliability was made on a few cases. Five supervisors who had made earlier contributions to the study, later re-rated certain teachers. It was impossible to control the activities of these supervisors, so no general statement can be made with regard to the amount of contact they had had with these teachers between ratings. It is known that four of the supervisors revisited the teachers between the two ratings and that one did not. The lapse of time between ratings varied from one to two months. Re-ratings after any longer period of time than this would probably be affected by growth in the teacher's ability, especially if she works under supervision. Such a factor may have influenced second ratings in this study. Supervisors who use this instrument might be expected to make an effort to help teachers to improve in regard to phases of work which were scored conspicuously low on the first rating. Certain of the raters with whom the writer had personal contact said that changes in their ratings could be accounted for in almost every case by definite changes which had occurred in the teachers during the interval between ratings.

In computing the correlation between first and second rating, each teacher's average score was used. There were 14 teachers in this group. The correlation between first and second ratings was $+ .91 \pm .03$. In order to interpret this correlation more specifically the reliability of each rater was computed by correlating her first rating with her second one on a given teacher, item by item. The teacher's average score was substituted for Z scores in this computation. This substitution was necessary in a very small per cent of cases. Table VIII shows the r thus computed for each rater. Rater 77 who rated 6 teachers has the highest reliability of the five. Her correlation of $+ .89 \pm .01$ shows that her second rating agreed very closely with her first rating, item by item. Rater 76 who rated one teacher has a correlation between first and second rating of $- .41$ which indicates that her second rating was sometimes lower and sometimes higher than her first. Rater 74 who rated 3 teachers has the only conspicuously low positive correlation which is $+ .21 \pm .07$. It is to be noted that rater 74 did not observe her teachers between the first and second ratings. The distribution of this rater's scores was distinctly flat. For all items

on the ratings of three teachers this rater used few others than the two scores 4.25 and 5.25. This apparent lack of discrimination was in sharp contrast to that evidenced by rater 77 whose ratings were well distributed over a range of four inches on the scale line with a piling up between 3.50 and 4.75. It is apparent that not all persons are able to use this instrument equally well. This is not surprising since skill in using many tests and scales is acquired by the training of their users. Average differences between re-ratings were computed on each item and are shown by Table IX to be satisfactorily close.

Further exploration of the reliability of the scale was made by correlating scores on one-half of the test against the other half. It was recognized that this procedure had limitations since

TABLE VIII

RELIABILITY OF FIVE RATERS WHO RE-RATED THE SAME TEACHERS AFTER
A PERIOD OF 4-8 WEEKS

Raters	No. of Teachers Rated	<i>r</i>	P. E.	Raters	No. of Teachers Rated	<i>r</i>	P. E.
76	1	-.41	±.12	73	2	+.69	±.05
77	6	+.89	±.01	74	3	+.21	±.07
53	2	+.71	±.05	—	—	—	—

Note: Correlation between first and second rating on each teacher item by item.

TABLE IX

AVERAGE DIFFERENCES IN RE-RATINGS BY SUPERVISORS ON THE WORK OF
THE SAME TEACHERS AFTER A PERIOD OF 4 TO 8 WEEKS

28 RATINGS ON 14 TEACHERS

Item	Av. Diff.	Item	Av. Diff.	Item	Av. Diff.
I	.38	X	.48	XIX	.27
II	.53	XI	.69	XX	.25
III	.27	XII	.36	XXI	.45
IV	.34	XIII	.43	XXII	.18
V	.33	XIV	.25	XXIII	.41
VI	.54	XV	.25	XXIV	.32
VII	.36	XVI	.30	XXV	.40
VIII	.08	XVII	.55	XXVI	.25
IX	.20	XVIII	.26	XXVII	.42

the items of the test are not weighted except by the arbitrary decision of the writer. The correlations were computed on the assumption that the results would be of value in determining the reliability of the scale in testing certain ranges of teaching ability.

Two methods of splitting the test were employed on the data contributed by the graduate students in Group II. The first correlation was made by comparing odd and even numbered items. This correlation was $+.88 \pm .01$. The writer then divided the total scale into halves which, in her judgment, tested comparable abilities in the teacher. The correlation between these halves for the same set of data was $+.89 \pm .01$. The latter method was the one adopted for use in the final experiment. Table X shows that the correlation between halves of the test, as rated by the supervisors in the field, was higher than the same when rated by the graduate students. There is probably no significant difference between the correlations on ratings made by students who rated teachers from their own records and those who rated on the basis of objective records made by their classmates. For the former group the correlation was $+.89 \pm .02$; for the latter, $+.86 \pm .03$.

In computing these correlations the average ratings for each half of the test were computed for each teacher, substituting the mid-score of 3.00 for all Z scores. The division of items follows:

PART A

- I. Habits of Cleanliness in the School Situation
- IV. Regulation of Wraps
- V. Out-of-door Play
- VII. Postural Habits and Development
- IX. Habits of Eating
- XV. Arrangement of the Room for Work and Play
- XVI. Creative Use of Materials
- XIII. Social Adjustment
- XVII. Problem Solving
- XX. Interpretation of Nature
- XXI. Dramatic Play
- XXII. Singing
- XXV. Literature

PART B

- III. Habits of Personal Cleanliness and Self Care
- II. Physical Conditions of the Room
- VI. Protection from Danger
- X. Rest
- XI. Habits of Elimination
- VIII. Prevention of Contagion
- XII. Social Organization
- XIV. Emotional Adjustment
- XVIII. Stimulating Experiences
- XIX. Interpretation of Social Life
- XXVII. Social Skills
- XXIII. Rhythmic Expression
- XXVI. Language
- XXIV. Drawing and Painting

The correlations of the halves of the test thus selected were computed for the different groups of raters and are shown by Table X to be very high. Apparently the ranges of ability, as represented by the scores on the two halves, have a very close relationship.

TABLE X
CORRELATION BETWEEN HALVES OF SCALE WHEN RATED BY DIFFERENT GROUPS

Group I Supervisors 231 Ratings	Group II Students 96 Ratings	GROUP III			
		Observation Basis 39 Ratings		Record Basis 35 Ratings	
<i>r</i> P. E.	<i>r</i> P. E.	<i>r</i> P. E.	<i>r</i> P. E.	<i>r</i> P. E.	<i>r</i> P. E.
+ .97 +.00	+ .94 ±.01	+ .94 ±.02		+ .92 ±.03	

Note: Coefficients of correlation have been corrected by the Spearman-Brown formula to show reliability of the whole test.

SUMMARY

This account of the varied use to which the scale was subjected has been reported here with a brevity which has allowed for very little interpretation. Certain points have been evident, however, and these are worthy of summary:

1. Supervisors both in service and in training have found the scale usable according to directions given and under conditions specified for the experiment. The data appear to show that raters were able to place the teachers on the scale with a comparatively small number of the Z scores which signify that no evidence was available as a basis for rating. The supervisors in the field used fewer Z scores than did the graduate students, indicating that fuller knowledge of the teaching situation makes fuller use of the scale possible. The average number of Z scores used by supervisors for nursery school teachers was 2.4, for kindergarten teachers .92, and for first grade teachers 1.23.
2. There was a marked tendency in the raters to use the upper end of the scale. This was shown by two types of treatment of the data: (1) The average of all ratings for the 231 teachers scored by supervisors was slightly more than an inch above the mid-point of three. (2) While practically the entire range of the scale was used, the lowest inch on the scale line was scored

for the lower limit of the individual records in 21 per cent of the cases while the highest inch on the scale line was used as an upper limit of 84 per cent of the cases.

3. The objectivity of the scale when used by different judges on the same teaching is best shown by the fact that, on the average, supervisors in the field were able to place the work of the same teachers within three-quarters of an inch on the five-inch scale line. Duplicate ratings by the graduate students fell well within one inch of each other on an average. Correlations did not reveal the objectivity of the scale as favorably as the average differences. This technique is probably less well adapted to the problem under consideration. The r between all possible pairs of duplicate scores on the same teachers were $+.78 \pm .02$, but the r between single pairs of ratings computed item by item ranged $+.95$ to $-.46$. It is apparent that, while average differences in ratings are small and the averages of total scores on duplicate ratings are in close agreement, the raters reversed the order of their ratings from item to item in such a way as to yield low correlations in some cases.
4. The reliability of the scale, as measured by correlations between the averages of first and second ratings on 14 teachers by the same supervisors after a period of from 4 to 8 weeks, was $+.91 \pm .03$. Here again the correlation between first and second ratings computed item by item for individual raters varied from $+.89 \pm .01$ to $-.41 \pm .12$.

Another method used for investigating reliability was the correlation of average scores of teachers on halves of the scale. This correlation was higher when computed on the 231 scores contributed by the supervisors than when made on data from the ratings of graduate students. Corrected by the Spearman-Brown formula, these coefficients of correlation for the scale as rated by the supervisors in Group I were $+.97 \pm .02$, for ratings by students in Group II $+.94 \pm .01$, for the two sections in Group III $+.94 \pm .02$, and $+.92 \pm .03$.

CHAPTER V

INTERPRETATION OF RESULTS OF THE USE OF THE ANALYSIS

Careful study of the results of the use of the scaled analysis of teaching in the various ways described in the previous chapters indicates that inferences may be drawn from two points of view: (1) inferences with regard to the practical use of the scale, and (2) inferences which relate to present practices in schools as they appear to be revealed in the teachers' scores reported in the foregoing pages.

PRACTICAL USE OF THE SCALE

This scale should lend itself to several types of use. The one for which it is most obviously intended is the one which the supervisor would give it in analyzing the teaching which she observes in a classroom. For the sake of making an objective record of such an analysis, a graphic representation of scores is recommended instead of the method of scoring and averaging employed in this study. Scores can probably be assigned most accurately to each item separately without references to any other item. For this purpose, scale lines are inserted within the text of the scale, one above the set of definitions for each item. When the separate ratings are completed scores should then be assembled on the form provided for the purpose and connected with a graph line.¹ This method lends itself readily to the work of diagnosis in supervision and remedial work in the improvement of teaching since it shows effectively the strong and weak points in teaching.² A typical graph is included in this report to illustrate the method which is favored for school usage. This typical graph illustrates the ease with which the teacher's score may be made and read.

The meaning of such a graph can be interpreted from the record of the teacher which is included in this report. The teacher has

¹ See form in Appendix, p. 85.

² In case a total score is desired for any reason it can be made easily from the graph sheet by assigning numerical scores from 1 to 20 to each quarter inch as has been done in this study.

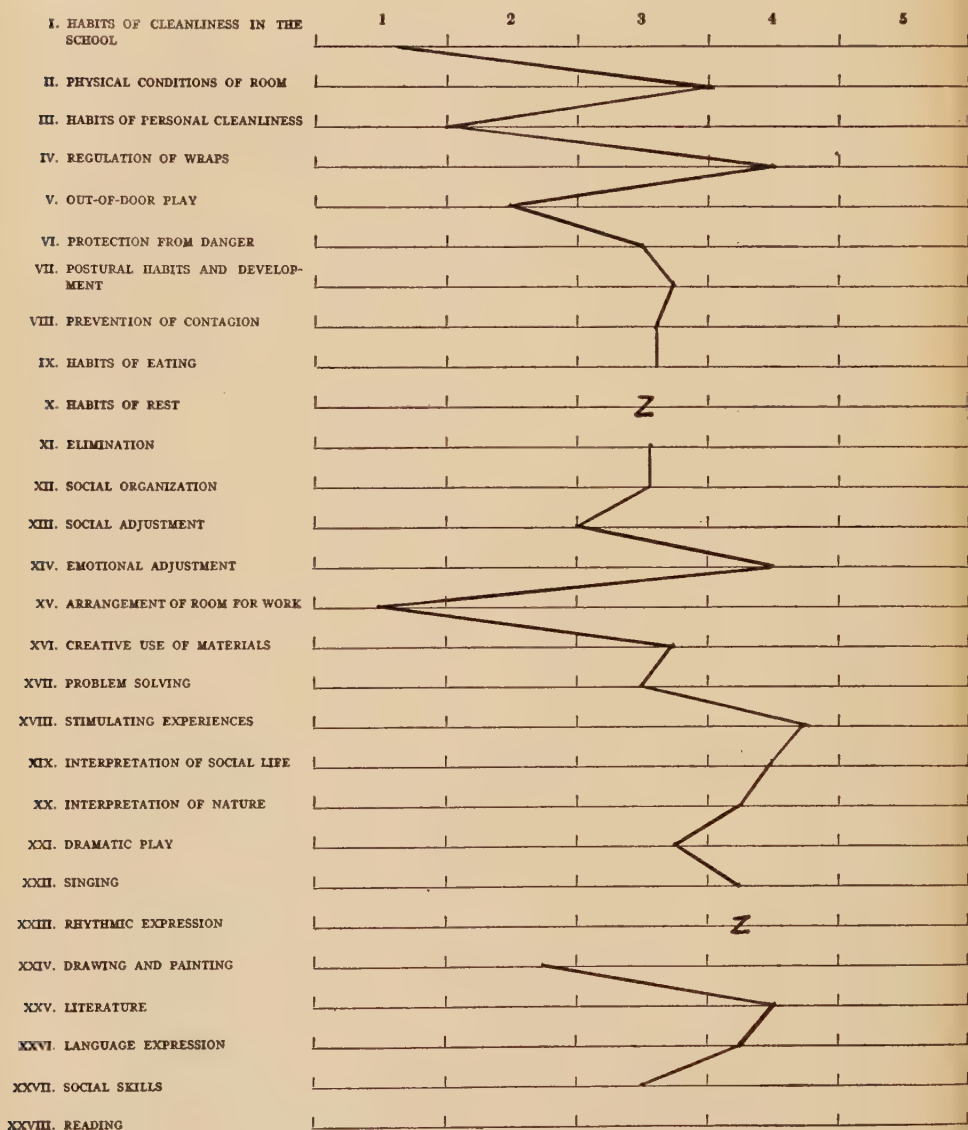
a rather uneven record. Her range of scores is from 1.00 to 4.00. Seven of her scores are at the mid-point of three, six are below, and twelve are above. From the evidence gained on observation in the classroom, the rater was able to score the teacher at 4.00 on the item "Emotional Adjustment of the Children" although in "Social Adjustment" there was apparently somewhat to be desired. According to the record, these children were having desirable experiences of an educative character, but the teacher was not quite equal to the opportunities afforded for interpretation of nature and the social life which surrounded them. Her use of literature also excelled her performance in aiding the children with their language development. Her provision of experiences and activities which lead to an interest in the social skills and understanding of them was average. Her greatest weaknesses appeared to be related to a lack of steady, careful management of the situation. Under her supervision the children were not learning desirable habits of caring for the room or those of personal cleanliness and responsibility for self. Her own arrangement of the room for the convenience of the children for a desirable type of work and play was very poor. The period of out-of-door play was apparently poorly regulated. The children were not properly protected from certain dangers which she appeared to be inadequate to handle. This teacher was in charge of a nursery school. The children played in a park a short distance from the school. The rater said that these tiny children ran ahead of the teacher and crossed the streets unattended; that at various times during the morning the teacher was unaware of the whereabouts of certain members of her group. While scores on the teacher's attention to most of the other matters of physical care and development fell midway between the positive and negative end of the scale, the rater found no evidence of provision for rest during the entire three hours of the observation. The observer said that the children showed unmistakable signs of fatigue when the end of the period was reached.

This record of a classroom visit was easily made and is an objective memorandum which will materially aid supervisory work. Such a record is of service to the teacher as well as to the supervisor. A teacher should be able to understand a supervisor's judgment when it is put before her in this form and accompanied by the analysis from which it is drawn. The teacher should be in

TENTATIVE ANALYSIS OF TEACHING IN NURSERY SCHOOL, KINDERGARTEN, AND FIRST GRADE

Locate ratings by points on this form and connect them with graph line

Name of teacher School Date



PROFILE GRAPH SHOWING RATINGS FOR INDIVIDUAL TEACHER

possession of the analysis so that she may study it as a standard and be aided by it to analyze her teaching acts and to improve her teaching technique.

That this instrument may be used as a supervisory aid in bringing about the improvement of teaching has been stressed. It may also be a help in training prospective supervisors for service. During this experiment such an advantage was evident in the use of the scale by the graduate students in the Department of Kindergarten-First Grade Education in Teachers College, Columbia University. The classes who used the instrument made supervisory visits to various schools and recorded and analyzed the work observed by methods of which accounts have been given previously. The record used in making the sample graph to which reference has just been made was furnished by a prospective supervisor and is typical of those made by each member of the class. While the period of acquaintance with the specific school situation is necessarily brief, there is reason to believe that considerable insight into problems of teaching and supervision was gained in the brief visits which these students were able to make. Any measures which we have been able to produce seem to show that these students are fairly reliable judges of teaching on the basis of three hours of observation. The reliability of the scale, as measured by the correlation of halves of the test, was not as high when based on ratings by the students as when rated by the supervisors, and the average differences in ratings made by several students on the same teacher were slightly greater than those made by the supervisors. However, both of these measures when applied to the work of the student groups were entirely satisfactory.

The work of the student groups makes possible, also, a general inference with regard to the length of time necessary for diagnosis by the use of the scale. It has been pointed out that these raters were able to score with a considerable degree of reliability on the basis of three hours of observation. The number of Z scores which they assigned in contrast to the number used by supervisors is also significant. The cases where no evidence was found for rating were more apparent in the work of the students than in that of the supervisors. The average number of Z scores assigned to all teachers by the supervisors was 1.52. The graduate students in Group II used an average of 4.22 Z scores and Group

III an average of 6.36 Z scores. The implication here is rather clear that an acquaintance of more than three hours is necessary for making a complete diagnosis of a teacher by this scale. It does not mean, however, that one cannot rate many items on the scale in less time than that. There is no intent to advocate that every visit must be as long as the one required by the rules of this experiment. Many supervisors who have a large number of teachers in their charge find this amount of time per visit impossible. This study was built upon the belief, however, that thorough familiarity with the work of the teacher is necessary for any supervisor or principal who attempts to diagnose difficulties. This knowledge may be gained from short visits if necessary, but they should be frequent enough and discriminating enough to insure intimate acquaintance with the work of the teacher if the supervisor is to be of the maximum service in the improvement of teaching. The scale may be marked at various times if desired. It should furnish an aid in diagnosis and a device for making an objective memorandum of observations.

IMPLICATIONS CONCERNING TEACHING AS REVEALED BY THE SCALE

The foregoing inferences relative to the practical use of the scale are drawn from outcomes of the study as it was originally planned. Another type of evidence, not anticipated, is that which is disclosed by a study of the way in which it has been used. Certain facts about tendencies in teaching of young children are made apparent by study of the large number of ratings on the work of teachers which have been made available in this study. Two bases are possible for drawing generalizations. One of these is the distribution of Z scores; the other a comparison of the mean scores attained on different items by teachers in the three grades. Inferences can be drawn more clearly from an examination of the Z scores than from the comparison of means. Consequently, the Z scores will be considered first.

Z scores indicate that the raters found no evidence for scoring. It is then apparent that some negative significance attaches to items which were given a large number of such ratings. Table IV shows the number of Z scores assigned to each item by each set of raters. It is apparent that the students who made three-hour visits as a basis for their ratings were obliged to use more Z scores than did the supervisors who rated on the basis of their previous knowledge

of the teacher as well as on evidence gained in the half day spent in the classroom immediately preceding the rating. It is worth noting, however, that in cases where a large number of Z scores were assigned by the student raters, there was usually a correspondingly large number of such ratings given by the supervisors in the field. In order to extract generalizations from the mass of data reported in Table IV, the items having the largest number of Z scores have been arranged in rank order in Table XI. The number following each item in the table indicates its rank. Number one means that the item was given the highest number of Z scores by the group. A certain amount of agreement is apparent on items included in this classification by each group of raters. That the evidence may be more easily studied, attention will be directed to the character of these items. They can be classified readily as items related to: (1) physical health and development, (2) experiences with social life and nature, (3) creative expression, (4) social and emotional adjustment, (5) literature, and (6) the social skills.

The physical care of the nursery school child is apparently obvious to observers. For the nursery school the only item which relates to the physical health and development of the children, and which is given a large number of Z scores, is that of Rest, which is ranked 6 by one group of student raters. For the kindergarten and first grade, the opposite is true. A long list of Z's is related to physical health. Habits of Eating, Prevention of Contagion, Out-of-door Play, Protection from Danger, and Habits of Elimination often received Z scores. The first grade adds to this list, Regulation of Wraps, and Rest. It is apparent that the teacher's relation to the health and physical development of the child is not so obvious in the kindergarten and the first grade as in the nursery school.

Two tenable reasons might be advanced for the non-appearance of evidence of such types of work in the classrooms visited. One is that the children may not need the kind of attention indicated, since their habits have already been properly fixed; the other is that such work, though essential, may not need to occur with sufficient constancy to insure that an observer will secure evidence of it in a three-hour visit. It is doubtless true that children a year or two older need to be given less attention with regard to the regulation of wraps, protection from danger, proper habits of elimina-

TABLE XI
RANK ORDER OF ITEMS GIVEN A HIGH NUMBER OF Z SCORES
BY THE RATERS

Nursery School, Kindergarten, and First Grade	Group I Supervisors	Group II Students	Group III Students
NURSERY SCHOOL			
Social Skills	1	5	3.5
Singing	2	3	7
Rhythmic Expression	3.5	2	5
Drawing and Painting	3.5	1	2
Nature	5	6	3.5
Literature	6	4	1
Problem Solving	7	—	—
Creative Use of Materials	—	7	—
Rest	—	—	6
KINDERGARTEN			
Habits of Eating	1	—	—
Social Skills	2	6	7
Prevention of Contagion	3	2.5	2
Literature	5	—	6
Interpretation of Social Life	5	—	—
Out-of-door Play	5	1	—
Nature	7	—	—
Protection from Danger	—	2.5	—
Dramatic Play	—	4	—
Singing	—	6	1
Rhythmic Expression	—	6	4
Posture	—	—	3
Elimination	—	—	5
FIRST GRADE			
Habits of Eating	1	—	—
Rhythmic Expression	2	1	2
Out-of-door Play	3.5	3.5	1
Rest	3.5	—	—
Singing	5	2	3
Literature	6	—	7
Prevention of Contagion	7	3.5	—
Regulation of Wraps	—	5.5	7
Dramatic Play	—	5.5	5
Elimination	—	7.5	7
Posture	—	7.5	—
Protection from Danger	—	—	4

Note: The numbers following each item indicate its rank in relation to the number of Z scores assigned by different groups of raters. A rank of 1 indicates that the item was given the highest number of Z scores.

tion, and the like, than do the nursery school children. The wisest school nurses, physicians, and teachers, however, would think these items too important in these years, as well as in the earlier ones, to be omitted from an analysis of good teaching. They would agree, however, that the fact that such items are less often reported by observers than certain other types of work may be explained without prejudice to the teaching observed. To the writer such items as, Prevention of Contagion, Out-of-door Play, Postural Habits, and Rest, appear to be of sufficient importance to five- and six-year-old children as properly to be apparent on the program of a half day's school activity. These are important functions of the early elementary grades. They have, however, revealed themselves in a half-day visit to the kindergarten and first grade classrooms less often than other activities listed on the scale. Items related to the experiences of the children are not conspicuous in these lists. The interpretation of nature, however, was frequently not observed in both the nursery school and the kindergarten, while any interpretation of civic and social life seems to be frequently excluded from the day's program in the kindergarten. The reasons for these omissions would seem obscure since the program of the earliest kindergartens following the example of those established by Froebel, included the study of social types, community life, and nature.

The nursery school fails, apparently, to reveal to observers the opportunities for creative expression such as singing, rhythmic expression, drawing and painting, and the creative use of other materials. Of these items the two which give opportunity for musical expression are repeated in the kindergarten and first grade lists and to them are added, for these grades, the item dramatic play. It is impossible to say with assurance that these modes of creative expression should be as apparent in the program of the immature nursery school children as they are in that of older children or that they should appear with the same frequency but it is difficult to imagine a three-hour sampling of any small child's day, if he is freely but wisely guided, which would not reveal him using materials in a creative way according to his own level of maturity. It is almost equally apparent that kindergarten and first grade children are highly dramatic in their play, and, when permitted to follow their own bent, are often discovered carrying forward tremendously educative projects of a dramatic character.

Yet by certain of the observers among the students no evidence of such activities was found in the schoolrooms.

Literature is included in the items mentioned for each grade by the scoring of almost every group of raters. The writer finds it impossible to explain this, since story telling has long been supposed to be popular with both teachers and children.

The social skills had a high per cent of Z scores in the records of the nursery schools and kindergartens. The scoring of this item was based on evidences of experiences and interests by which children gain an insight into the meaning of reading and other school arts rather than on the teacher's skill in the actual teaching of these subjects. The theory basic to this item is that the program of activities of young children should lead forward to widening activities and outlooks. If the observers failed to find in the nursery school and kindergarten evidences of bases for the children's future understanding of the social skills, the teaching probably lacked a certain vitality, or the supervisors were not discriminating in their interpretation of the procedure.

No summary of the evidence can be made to show clear-cut contrasts between the procedure of the three grades as shown by the number of Z scores assigned to the various types of items, but in general it appears that the one type of work of which nursery school procedure most often fails to show evidence is that along the lines of creative expression. The outstanding evidence lacking in reports of the kindergarten and first grade is that related to physical health and development of children. Literature and music are lacking in evidence in all grades.

Exploration of the mean scores attained by the teachers of the different grades on each item also reveals certain interesting aspects of this study. The means were computed on the basis of the actual scores attained discarding the Z scores. They were computed on the scores contributed by the supervisors in the field and not on those made by the graduate students. Table XII shows the items which had the highest averages of scores arranged in rank order. Number one in each case has the highest score.

The same classification of items which was adopted for discussion of the Z scores will be serviceable in discussing tendencies which are made apparent by the high average ratings. The lists of high scores indicated that certain aspects of school procedure appear to be generally well cared for by the teachers. These

relate to the routine type of physical care of the child. They are: Habits of Personal Cleanliness, Habits of Cleanliness in the Care of the Room, Protection of Children from Danger, and the Regulation of Wraps.

The nursery school ranks conspicuously high on the items which were low in number of Z scores; those concerned with the physical health of the child. The kindergarten teachers scored high on the items, Out-of-door Play, Prevention of Contagion, Rest, and Habits of Elimination. From this evidence and that which was previously cited with regard to Z scores, it is apparent that the physical care of the children is readily observed in the nursery school and adequately cared for.

The kindergarten adds to the list of procedures, which are commonly superior in all grades, three items, Social Organization,

TABLE XII

ITEMS ON THE SCALE HAVING HIGHEST AVERAGE SCORE FOR EACH GRADE

ITEM	30 Nursery Teachers	98 Kindergar- ten Teachers	103 First Grade Teachers
	Rank Order	Rank Order	Rank Order
Regulation of Wraps	1	2	2
Prevention of Contagion	2	—	—
Elimination	3	—	—
Personal Cleanliness	4.5	6	6
Habits of Cleanliness in Room	4.5	1	3
Outdoor Play	6	—	—
Protection from Danger	7.5	5	4
Rest	7.5	—	—
Social Organization	—	3	6
Arrangement of Room for Work	—	4	—
Social Adjustment	—	7	—
Literature	—	—	6
Social Skills	—	—	1

Note: The rank of 1 indicates that the item was given the highest average score for the group.

Social Adjustment, and Arrangement of Room for Constructive Work and Play. These items were not prominent for the number of Z scores assigned to them. It is again apparent that high scores correlate negatively with Z scores. The list of items is interesting to speculate about. It is almost proverbial in public schools that the kindergarten is usually given the best room in

the building. It has never been subjected to formal arrangement of desks and the like. Kindergarten children have been allowed free space for active work and play. The high scores reported on the advantageous arrangement of the room for work and play appear to indicate that the kindergarten teachers in this study availed themselves of the advantages offered them. The social organization of the kindergarten in general has been of a freer type, more in keeping with child needs, than that common to the upper grades. High scores in this study support the commonly observed tendency. It is not surprising that social adjustment of the children should attend such an organization. It apparently does this in the cases reported in this study.

The first grade also lists among its scores of high rank the social organization of the school, and distinguishes itself from the other groups by its high scores on literature, and the social skills. Literature was so frequently unobserved as to rank high on the list of Z scores. It consequently proves an exception to the rule that items which rank high are also most often observed. The first grade has not heretofore shared the reputation of the kindergarten for having a freer type of social organization. It is gratifying to discover this item rated high for the first grade teachers in this study. For many years the teaching of the social skills was considered to be the whole function of the first grade. The tradition is given some support in this study since the social skills stand out in the first rank for high scores.

Table XIII shows the seven items on the scale having the lowest average scores for the three grades; the lowest score being given the rank of 27. Inferences are not clear from this list. The nursery school teachers appear to have low scores in practically the same list of items on which they had the highest per cent of Z scores. These items are largely concerned with creative expression. No one type of work stands out predominately on this list of items having low scores for the kindergarten teachers, but five of the seven items were also listed because of their large number of Z scores. The first grade list repeats four of the items related to the physical health of the child which were included in the items having the highest number of Z scores.

In order to make more accurate comparison of the average scores attained by the teachers in the three grades, the Probable Error of the differences between each mean was computed. The

TABLE XIII

ITEMS ON THE SCALE HAVING LOWEST AVERAGE SCORE FOR EACH GRADE

ITEM	30 Nursery Teachers	98 Kindergarten Teachers	103 First Grade Teachers
	Rank Order	Rank Order	Rank Order
Social Skills	27	26	—
Singing	26	—	—
Drawing	24.5	25	23.5
Rhythmic Expression	24.5	—	26
Problem Solving	23	22	—
Creative Use of Materials	22	—	23.5
Dramatic Play	21	24	—
Postural Habits	—	27	21.5
Literature	—	23	—
Nature	—	21	—
Rest	—	—	27
Out-of-door Play	—	—	25
Emotional Adjustment	—	—	22
Food Habits	—	—	21.5

Note: The rank of 27 indicates that the item was given the lowest average score for the group.

critical ratio was derived by dividing the attained difference by the P.E. of the difference.² Differences and critical ratios are shown in Table XIV. It will be noted that all scores for the nursery school group were higher than those for the kindergarten, except those for Rhythmic Expression, which were the same in both instances, and those for Creative Use of Materials, which were given a slightly higher score in the case of the kindergarten teachers than in case of the nursery school group. In every instance, except that of the Social Skills, the nursery school scores excelled the scores of the first grade. The kindergarten scores averaged higher than those of the first grade except for the items related to the Physical Conditions of the Room, Dramatic Play, Literature, and the Social Skills. Many of the critical ratios are three or more and are, therefore, significant. Among the most significant differences between the nursery school scores and those of the other two grades, as indicated by the size of the ratios, are those concerned with the physical health of the chil-

² If the critical ratio is 3 or more, the difference is considered a significant difference, not caused by inaccuracies of reporting or by insufficient sampling. McGaughey, J. R. *Fiscal Administration of City School Systems*, Vol. V, p. 13. Macmillan Co., 1924.

dren. Physical health items include Prevention of Contagion, Out-of-door Play, Posture, Rest, and Personal Cleanliness, as well as such routine matters as Regulation of Wraps, Regulation of Heat, Light, and Ventilation, and Cleanliness in the School Situation. This evidence supports that formerly cited which gave prominence to the fact that the nursery school teachers excel in the physical care of the children.

TABLE XIV

DIFFERENCES IN MEANS OF SCORES ASSIGNED BY SUPERVISORS TO THE WORK OF TEACHERS IN THE THREE GRADES

ITEM	Nursery—Kindergn.			Nursery—First Grade			Kindergn.—First Grade		
	Mn-Mk	P. E. Diff.	C. R.*	Mn-Mf	P. E. Diff.	C. R.	Mk-Mf	P. E. Diff.	C. R.
I. . .	.01	.116	.08	.56	.113	4.96	.55	.088	6.27
II. . .	.62	.103	6.03	.55	.091	6.01	-.07	.087	.80
III. . .	.42	.103	4.09	.59	.096	6.15	.17	.088	1.93
IV. . .	.59	.087	6.75	.59	.085	6.95	.00	.091	.00
V. . .	.61	.117	5.22	.83	.112	7.39	.22	.112	1.33
VI. . .	.31	.123	2.52	.47	.117	4.01	.16	.101	1.59
VII. . .	.54	.112	4.83	.38	.103	3.71	.16	.094	1.69
VIII. . .	.72	.107	6.75	.75	.099	7.58	.03	.093	.32
IX. . .	.13	.159	.82	.34	.146	2.33	.21	.115	1.83
X. . .	.57	.136	4.19	1.10	.130	8.44	.53	.096	5.51
XI. . .	.78	.111	7.03	.74	.099	7.51	.04	.096	.42
XII. . .	.09	.140	.64	.31	.136	2.28	.22	.092	2.39
XIII. . .	.22	.127	1.75	.50	.122	4.10	.28	.100	2.80
XIV. . .	.46	.120	3.82	.67	.119	5.64	.21	.095	2.21
XV. . .	.04	.109	.37	.42	.112	3.47	.38	.096	3.95
XVI. . .	-.03	.121	.25	.32	.118	2.71	.35	.096	3.65
XVII. . .	.15	.140	1.07	.22	.133	1.65	.07	.098	.71
XVIII. . .	.33	.129	2.55	.40	.119	3.35	.07	.094	.75
XIX. . .	.42	.113	3.70	.55	.106	5.16	.13	.094	1.39
XX. . .	.44	.109	4.04	.53	.102	5.18	.09	.094	.96
XXI. . .	.25	.126	1.98	.15	.123	1.22	-.10	.097	1.03
XXII. . .	.01	.150	.07	.05	.143	.35	.04	.093	.43
XXIII. . .	.00	.168	.00	.30	.166	1.80	.30	.103	.29
XXIV. . .	.19	.128	1.48	.27	.119	2.26	.08	.092	.87
XXV. . .	.48	.096	5.03	.33	.089	3.71	-.15	.091	1.65
XXVI. . .	.43	.136	3.16	.45	.134	3.36	.02	.098	.20
XXVII. . .	.03	.242	.12	-.50	.227	2.20	-.53	.110	4.82

Mn = Mean of Scores on Nursery School Teachers.

Mk = Mean of Scores on Kindergarten Teachers.

Mf = Mean of Scores on First Grade Teachers.

P. E. Diff. = Probable Error of the Difference of Means.

C. R. = Critical Ratio, $\text{Diff.} \div \text{P. E. Diff.}$

* If ratio is 3 or more, difference is believed to be significant and not caused by inaccuracies of reporting or insufficient sampling.

The nursery school scores stand out as significantly higher than those of the kindergarten and first grade on those items related to the interpretation of experiences in nature and social life. These items were noted before as those having a large number of Z scores for the kindergarten group. Literature also appears to be given more favorable attention in the nursery school, if one may judge by these scores.

The emotional adjustment of the children was also rated significantly higher for the nursery school than for the kindergarten and first grade. Items related to the children's creative expression on which the nursery schools attained their lowest scores were still not lower than those given the other two grades for the same items.

The kindergarten scores were significantly higher than the first grade on Cleanliness of the Room, Arrangement of the Room for Work and Play, Creative Use of Materials, and Rest. These are pertinent items and suggestive of kindergarten ideals and standards. The item on which the first grade was significantly higher than the kindergarten was the one related to the Social Skills. The difference between the means for first grade and nursery school on this item was about as great as that between first grade and kindergarten, but the number of Z scores assigned the nursery school teachers on this item decreased the number of cases to such an extent that the critical ratio was only 2.20. The maturity of the children in the first grade is such as to make it essential that they have expert teaching in the social skills. It is questionable practice, however, when first grade teachers make these skills their major emphasis to the exclusion of considerations concerned with the child's health, creative activity, and his social and emotional adjustment with life. It is desirable that the skill of the teacher should keep abreast of the broadening social horizon of the children in kindergarten and first grade.

SUMMARY

Comparisons made on the basis of the data contained in this study are of speculative rather than conclusive character. The practical usefulness of the scale, however, has been rather clearly demonstrated. Results indicate that the scale can be used profitably by supervisors in service and in training for making discriminating diagnosis of teaching and objective records of

supervisory visits. It is thought that this instrument will be an aid to teachers as well as to supervisors.

The mass of scores on teaching which have been made available in this study have furnished interesting material for thought. No undebatable generalizations can be drawn, but the varied evidence at hand points most frequently to the inference that the nursery school procedures show up decided strength in the care of the physical health and development of the children and that in this respect the kindergarten and first grade are less vigilant. The nursery school shows the poorest record on items related to guidance of children's creative expression. Practically all nursery school scores average higher than those of the kindergarten and first grade and most of the kindergarten scores are above those of the first grade. Nevertheless, the first grade scores significantly higher than does the kindergarten on the Social Skills. The kindergarten scores are significantly higher than those of the first grade on the items, Habits of Cleanliness in the Care of the Room, the Arrangement of the Room for Work and Play, Creative Use of Materials, and Rest.

CHAPTER VI

SUMMARY, RESULTS, AND CONCLUSIONS

SUMMARY

Two lines of investigation have been carried on in this study. The first was the construction of a scaled analysis of specific, observable teaching acts typical of procedures in the nursery school, kindergarten, and first grade. The second was the experimental use of the scale by many raters in divers school situations. The purpose of the study was to furnish an objective instrument useful to supervisors and teachers in differentiating strong and weak points in teaching procedures.

The items included in the scaled analysis are specific acts which teachers have been observed to perform. These acts were selected from a large number of written records of classroom procedures, many hours of supervisory observation, books on early elementary education, and from discussion with experts in supervision and with graduate students in education.

The organization of the specific procedures thus chosen was made in conformity with educational principles assumed to represent desirable teaching. Each general item was scaled on a basis of five points representing degrees of efficiency, each point being illustrated by descriptions of specific teaching acts. Success in the use of the scale so organized depends upon the supervisor's ability to match the procedures observed with the samples or illustrations given for each scale point. The instrument was given thorough preliminary use and revision before the final experimentation herein reported was attempted.

In the final experimentation the scale was put into service in a great variety of situations. Eighty supervisors rated the work of two hundred thirty-one teachers in public schools, and in college and university demonstration classes in localities distributed throughout the United States. The scale was used also by one hundred twelve graduate students as an incidental part of their

professional courses in supervision. Their ratings, made on the basis of three hours of observation, gave evidence as to whether the instrument could be used by raters after limited acquaintance with the work of the teachers rated.

RESULTS

The results of this study are of two kinds: first, the scale itself; second, the data collected from the use of this scale. Two reasons may be adduced for assuming the validity of the scale as a standard for judging teaching. The first of these is that the scale was designedly made to conform with a list of principles of education generally agreed upon by educational experts to be philosophic bases of good teaching. The second is that the original scale was submitted for use to forty people trained and experienced in methods of teaching and supervision and was revised on the basis of their criticism.

Further support has been given to the scale by the data collected from its practical use in the final experiment. Evidence thus derived is of several types:

1. There is an obvious tendency for ratings to mass at the upper end of the scale. Three possible explanations are advanced for this skewing of the distribution of scores: (1) either the scale is so constructed that score 4 instead of 3 is the mid-point between efficient and inefficient performance, or, (2) the average teaching population, because of selective factors in the professional world, has a degree of skill which exceeds the theoretical midpoint of teaching efficiency, or, (3) the teachers scored in this study are a selected group of high order. The third of these theories is the only one which could be tested experimentally. Such a check was made by correlating test scores given by supervisors with general estimates of the work of the teachers made by the same judges. The coefficient of correlation calculated by the Pearson product-moment method is $+ .81 \pm .02$. This indicates that, in the opinion of the supervisors, these teachers were above the average, and that the average scale rating above the neutral point is, therefore, just.
2. A considerable agreement between judges who rated the work of the same teachers is evident. Supervisors in the field made

duplicate ratings on thirty-five teachers with average difference in ratings on the work of the same teachers of three-quarters of an inch or less on the five-inch scale line. Duplicate ratings on the work of the same teachers by one hundred twelve college students fell within one inch or less on the average. This presumably means that the average rater whose work is used in this study placed the teachers in their proper fifth of the scale. Such results indicate that the scale meets satisfactorily the test of the criterion for ratings set up by Rugg.

The coefficient of correlation between the individual teachers' average scores given by different judges is $+.78 \pm .02$. Correlations between single pairs of ratings computed item by item are not all high. The r 's on fifty pairs of ratings range from $+.95$ to $-.46$. It is apparent that, while the average differences in duplicate ratings item by item are small and the total scores of the teachers on duplicate ratings are in close agreement, some pairs of raters reversed the order of their ratings from item to item in such a way as to yield low coefficients of correlation upon single items. Such discrepancy is to be expected. It is but fair to consider it probable that greater training in the use of such scales will tend to reduce the divergence.

3. The reliability of the scale when measured by the correlation between first and second ratings on fourteen teachers after a period of four to eight weeks is $+.91 \pm .03$. However, correlations between first and second ratings computed item by item for individual raters ranged from $+.89$ to $-.41$. Correlation between halves of the scale when corrected by the Spearman-Brown formula ranged from $+.92 \pm .03$ to $+.94 \pm .01$ on data contributed by different groups of raters.

CONCLUSIONS

The conclusions from this study relate, for the most part, to the practical uses of the scaled analysis in so far as the experimental procedure has indicated them. Outstanding inferences with regard to the usefulness of the scale are summarized below:

1. The scaled analysis which is presented in this study has proved itself by experimentation to be a fairly precise, workable instrument for evaluating teaching procedures. Since the teach-

ing process, rather than traits of teachers, is rated, this instrument stands in contrast to many others previously devised. Experimentation with the scale has evidenced that it can be used according to the directions which accompany it without misunderstanding or confusion. Its reliability in the hands of presumably average raters is high and the average agreement between two or more judges on the work of the same teachers is fairly close.

2. Although ratings were generally satisfactory, individual raters vary in their ability to use the scale. The reliability of certain raters is high while that of others is low. Good results in the use of many tests and scales are dependent upon being used by trained raters and one may, therefore, believe that poor raters could probably be trained to rate with greater precision with this scale. It is but reasonable to suppose that such increased precision would make for increased effectiveness in the technique of such supervision as is helpful to teachers.
3. Experience during experimentation suggests that the analysis may be effectively used in training prospective supervisors to observe and evaluate teaching.
4. So far, neither supervisors nor teachers in service, nor those in training, have used this instrument for the improvement of teaching, but it is believed that noteworthy benefits might accrue from having in hand such a standard. Further investigation could profitably be made of the effect of the use of the instrument over a period of time upon the quality of the teacher's work. For such purpose teachers and student-teachers might well have free access to the scale for periodical checking of their own work.
5. For practical use the making of a graphic representation of teachers' scores after the rating is completed is recommended in order to make strong and weak points in teaching stand out in relief. In this study numerical scores were used instead of graphic placement for the sake of statistical exploration of the data.

The previous conclusions have been related to the serviceability of the scale. Other inferences may be drawn relative to tendencies in present day teaching of young children. While these may be debatable the evidence at hand points most frequently to the in-

ference that the nursery school procedures show decided strength in care for the physical health and the development of children, and that, in this respect, the kindergarten and first grade are less vigilant. The lowest scores on nursery school teaching are those on items related to creative expression. The average scores of practically all items of the scale are higher for nursery school teachers than for kindergarten teachers. In general, the kindergarten teachers average somewhat higher than the first grade teachers except on the item Social Skills which relates to Reading, Writing, and Number. On this item the scores of the first grade teachers are significantly higher than those of the kindergarten teachers. The kindergarten scores are significantly higher than those in the first grade on the items Habits of Cleanliness in Relation to the Care of the Room, Arrangement of the Room for Creative Work and Play, Creative Use of Materials, and Rest.

APPENDIX A
SAMPLE PROFILE CHART
SAMPLE SCALE

TENTATIVE ANALYSIS OF TEACHING IN NURSERY SCHOOL, KINDERGARTEN, AND FIRST GRADE

Locate ratings by points on this form and connect them with graph line

Name of teacher School Date

	1	2	3	4	5
I. HABITS OF CLEANLINESS IN THE SCHOOL					
II. PHYSICAL CONDITIONS OF ROOM					
III. HABITS OF PERSONAL CLEANLINESS					
IV. REGULATION OF WRAPS					
V. OUT-OF-DOOR PLAY					
VI. PROTECTION FROM DANGER					
VII. POSTURAL HABITS AND DEVELOPMENT					
VIII. PREVENTION OF CONTAGION					
IX. HABITS OF EATING					
X. HABITS OF REST					
XI. ELIMINATION					
XII. SOCIAL ORGANIZATION					
XIII. SOCIAL ADJUSTMENT					
XIV. EMOTIONAL ADJUSTMENT					
XV. ARRANGEMENT OF ROOM FOR WORK					
XVI. CREATIVE USE OF MATERIALS					
XVII. PROBLEM SOLVING					
XVIII. STIMULATING EXPERIENCES					
XIX. INTERPRETATION OF SOCIAL LIFE					
XX. INTERPRETATION OF NATURE					
XXI. DRAMATIC PLAY					
XXII. SINGING					
XXIII. RHYTHMIC EXPRESSION					
XXIV. DRAWING AND PAINTING					
XXV. LITERATURE					
XXVI. LANGUAGE EXPRESSION					
XXVII. SOCIAL SKILLS					
XXVIII. READING					

PROFILE CHART

A TENTATIVE ANALYSIS OF TEACHING IN NURSERY SCHOOL, KINDERGARTEN AND FIRST GRADE

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GENERAL STATEMENT

(Please read all directions before beginning the study)

The analysis of teaching in nursery school, kindergarten, and first grade was assembled from the contents of a large number of written records of classroom procedure, many hours of supervisory observations by the author, the advice (based on their experience) of several experts in supervision, and books on teaching. Each general item was then scaled on a basis of five points representing degrees of efficiency as determined by a set of principles set up and agreed upon by a group of educational experts in Teachers College, Columbia University, as basic assumptions of what constitutes good teaching. The list of teaching acts thus derived is by no means a complete inventory of what teachers do in the actual situation, but is an attempt to set up significant samples of typical classroom procedure.

The purpose of formulating the analysis is to determine the significance of certain things which teachers do in the classroom. The instrument should lend itself to a variety of uses which will be acceptable to both supervisors and teachers. In the present study, however, we should like to insist upon uniform observance of the following directions so as to make a fair tryout of the effectiveness of the analysis. While names of teachers are requested for the sake of identification in case of need for later check-up, each rater is assured that the data sent in for this study will be treated in strictest confidence. Neither names of teachers, nor of schools will be used in any way whatsoever.

GENERAL DIRECTIONS TO RATERS

1. Choose for study any teachers in nursery school, kindergarten, and first grade whom you regularly supervise or whose work you feel competent to evaluate. A representative group of teachers possessing a range of ability is desired in the entire study.
2. Familiarize yourself thoroughly with the contents of the analysis.
3. Observe each teacher whose work is to be evaluated for a one-half day session.
4. Take full notes on your visit so as to make your recall of the situation as accurate and objective as possible.
5. Make the rating on the work you have observed within the next eight hours after the visit.

6. Where there are two or more teachers in one room, make your rating on the head teacher. If the assistant has considerable responsibility, and if you have enough evidence about her work to make an evaluation, make a separate rating for her and designate clearly that the two individuals are director and assistant in the same situation.
7. Please cooperate in our attempt to have the situation as normal as possible by not confiding to the teacher during this study the contents of the analysis. The rating will be fairer also if the teacher does not know that her work is being evaluated on the basis of the present visit. However, if it appears that she should be consulted in the matter, the rating can still be used in the study.

SPECIFIC DIRECTIONS FOR SCORING

1. A five-point scale line is provided for indicating degrees of efficiency in each of the items in the analysis. Each point is defined in terms of teaching acts. Points 1 and 2 on each scale represent those acts which are less desirable practice and points 4 and 5 those acts which are more desirable according to basic principles set up. Point 3 is a neutral point between efficiency and inefficiency and is purposely undefined so as to facilitate rating. Every definition contains a variety of illustrations calculated to fit as well as may be the varying levels of maturity of the children and the varying performance of individual teachers. The rater should note the significant things which a teacher does and should match her work with the illustrations which are as near like the acts observed as possible, keeping in mind always the stage of development of the children. It is not expected that any teacher will do exactly the same things as those which are enumerated, but rather that she will conform to the general picture.
2. The ratings need not be placed exactly on the divisional points of the scale line, if your judgment indicates that they should fall somewhere between them.
3. All ratings should conform in general location on the line to the definitions of the scale points, even though the rater may disagree with the placement on the scale of any point as it is defined.
4. When the teacher observed does contradictory things, that is, when her specific acts taken individually would place her at more than one point on the scale, the rater must decide on the basis of frequency which is most typical and place the rating accordingly.
5. On items for which no specific evidence appears during your visit but for which you recall vividly specific evidence gained from former visits, rate the teacher on the basis of your knowledge of her work, but put a circle around the letter which designates her position on the scale.

Thus:

(A)

6. In cases where regulation of the situation lies completely outside of the teacher's control give the score merited by the situation as it exists, but inclose the teacher's designation letter in a square. Thus: B

7. In cases where you have no evidence whatever, write Z at the extreme right of the scale, and designate whether the Z refers to teacher A, B, or C.

SAMPLE RATING

Note: Three teachers may be rated on each line. Write the name of each teacher below and designate her rating in each instance by the letter assigned to her name. If two or more teachers have the same rating place one letter below the other, thus:

1	B	2	3	A	4	5
	✓			✓		
C						

DATA CONCERNING VISIT TO EACH TEACHER

(Please fill out at the time of rating)

Teacher A

Name.....Date of Observation.....
 Hours observed: From.....To.....No. of teachers in this grade.....
 Did the teacher know her work was being evaluated on this visit?.....
 What is the entire length of the school day for these children?.....
 No. of children present on the day of observation.....
 Approximate age range.....

Indicate any outstanding strength or weakness in the teacher's work of which this scale appears not to take account.

Teacher B

Name.....Date of Observation.....
 Hours observed: From.....To.....No. of teachers in this grade.....
 Did the teacher know her work was being evaluated on this visit?.....
 What is the entire length of the school day for these children?.....
 No. of children present on the day of observation.....
 Approximate age range.....

Indicate any outstanding strength or weakness in the teacher's work of which this scale appears not to take account.

Teacher C

Name.....Date of Observation.....
 Hours observed: From.....To.....No. of teachers in this grade.....
 Did the teacher know her work was being evaluated on this visit?.....
 What is the entire length of the school day for these children?.....
 No. of children present on the day of observation.....
 Approximate age range.....

Indicate any outstanding strength or weakness in the teacher's work of which this scale appears not to take account.

ADAPTATION OF ROUTINE PROCEDURES SO AS TO PROMOTE IN THE CHILDREN BOTH PHYSI- CAL DEVELOPMENT AND DESIRABLE HABITS, ATTITUDES, AND SKILLS

HABITS OF CLEANLINESS IN THE SCHOOL SITUATION

- I. *Sees to it that children form desirable habits and attitudes in promoting cleanliness and order in the school situation.*

1	2	3	4	5

1. Appears to be oblivious of unclean, disorderly conditions.

Explanation: Room, cupboards, lavatories, dressing rooms, and play space are in unsightly, unclean condition. Children are being subjected to the influence of unclean, disorderly surroundings.

2. Cleanliness and order maintained with limited exercise of care and responsibility on the part of the children.

Ex: Teacher covers sand box and in similar ways inhibits play with such materials as might cause confusion. Takes all the responsibility herself for the care of children's toys and other belongings and for general care of the room. Or, if children have nominal share in this routine, teacher stands over them with a multiplicity of directions; takes things from their hands; guides the mop or dust cloth while the child is using it.

3. Average methods of promoting habitual attention to cleanliness and order in the school, neither positively efficient, nor yet inefficient, lying at the mid-point between 2 and 4.

4. In proportion to their maturity children have a share in the responsibility for cleanliness and order of the room.

Ex: Free, active use of the facilities of the school is permitted. Children give evidence of forming habits of cleaning up after their work. General order and cleanliness of room maintained.

5. Teacher shows superlative skill in helping children to form habits of preventing disorder as well as those of responsibility and care in cleaning up. Children show definite beginnings of civic responsibility for room care.

Ex: Teaches children how to use sand without spilling it; how to prevent an undue accumulation of materials during work period. Has definite system which children employ in care of room. Children go about their work with a zest which indicates a feeling of responsibility.

ADAPTATION OF PHYSICAL CONDITIONS OF ROOM TO VARYING NEEDS OF CHILDREN

Temperature—Lighting—Ventilation

II. *Adapts the temperature, lighting and ventilation of the room to varying needs during the day.*

1	2	3	4	5

Note: Make a summary estimate of teacher's efficiency in attending to physical conditions which include temperature, lighting, and ventilation.

If the condition is outside of the teacher's control, rate the situation on its merits, but put a square around the rating. Thus: ✓

1. Appears to be oblivious of unsuitable temperature, lighting or ventilation. Makes no effort to change conditions.

Ex: If the temperature of the room is above 70° or below 65°, and the teacher fails to utilize available resources for changing it, she is probably oblivious of the fact that it is unsuitable. If bright sunlight falls continuously in children's eyes; or if children work in a dim light and teacher does not utilize available resources for changing the condition she should score at #1 in this regard. If air is stale and has an offensive odor the teacher probably does not realize the condition.

2. Is ineffective in attempts to regulate temperature, lighting and ventilation.

Ex: In an effort to regulate temperature and ventilation the teacher exposes children to draft or other unsuitable conditions. In an attempt to protect children's eyes, makes room too dark or the reverse.

3. Methods of regulating physical conditions of the room at an average, neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Maintains temperature around 68° for all periods of the children's activities. Regulates light so as to protect children's eyes from strain throughout the major part of the day. Seats children so that they do not face bright light for extended periods. Makes desirable provision for ventilation at the beginning of the day and maintains it throughout the session.

5. Shows special skill in varying the physical conditions of the room to meet the needs of the children during varied periods of their activities.

Ex: Maintains a general temperature of 68° which she lowers slightly for periods of strenuous activity and raises for periods of quiet, particularly for rest period if children lie down for relaxation without covering. Sees that children do not change clothing in a cold bathroom. Lowers temperature of sleeping room if children go to bed and are covered at nap time. Protects children's eyes from strain at all times. Changes lighting for varying needs; e.g., dim light for rest period and the like. Varies sources of ventilation with children's varied activities and change of location in the room. Is ingenious in methods of protecting children from drafts.

HABITS OF PERSONAL CLEANLINESS AND
SELF-CARE

III. *Sees that children maintain personal care and cleanliness in a way which promotes habits of healthful living and social responsibility.*

1	2	3	4	5

1. Evidences a lack of appreciation of the importance of teaching children habits of personal care and cleanliness.

Ex: Has lunch period without washing hands. All children wash in the same dish or comb hair with the same comb. Fails to protect children's clothing from damage during work period. Asks children to put wraps on the floor while they are putting on overshoes. Lack of systematic arrangement causes general confusion of clothing. Children get each other's wraps; are naughty and disorderly.

2. Fails to give children sufficient responsibility and practice in establishing habits of personal care and cleanliness.

Ex: Washes children's hands for them; combs their hair. Talks to children about cleanliness; practices are inconsistent or spasmodic. Gives children more help than is necessary in putting on and taking off wraps. Disposes of wraps herself.

3. Methods of promoting habits of self-care and personal cleanliness at an average, neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Trains children in the right habits of self-care and personal cleanliness.

Ex: Sees to it that children wash hands before eating and after toilet; protect clothing from unnecessary dirt; use clean handkerchiefs or soft paper provided for the purpose. Has a well organized routine for changing clothing and disposing of it, but children give evidence of considerable dependence upon the teacher for direction; dawdle over tasks; need frequent reminders; appear to lack purpose of their own.

5. Evidences special skill in estimating the ability of the children to help themselves and in promoting their desire to do so in an orderly, happy manner.

Ex: Builds up pride in an efficient performance. Where necessary takes definite steps to give children a desire for well-kept nails, hair, clothing, clean hands and faces. Avoids over fixation of attention on the untidy child, but treats his difficulties in a positive fashion. Teacher appears to know how much help each child needs with wraps, hand washing and the like and gives no more. Maintains expectancy that children will learn to care for themselves as rapidly as possible. They appear to be doing so in a happy frame of mind.

REGULATION OF WRAPS TO MEET CHILDREN'S VARYING NEEDS

IV. *Regulates wraps to weather conditions.*

1	2	3	4	5

1. Appears not to recognize responsibility for regulation of children's clothing.

Ex: Sends children out of doors in severe weather without warm wraps. Sends them out in snow or rain without rubbers, leggings, or galoshes. Allows children to wear heavy sweaters, leggings, rubbers, or galoshes for extended periods in the classroom.

2. Appears to be conscious of children's needs, but fails to see that needs are met.

Ex: Allows children who are well provided with wraps to go out in severe weather with them inadequately fastened; with coats unbuttoned, scarves flying loose, mittens off.

3. Methods of regulating wraps at an average, neither positively efficient nor yet inefficient but lying at the mid-point between 2 and 4.

4. Sees that clothing of children is adequately adjusted in so far as it is supplied by parents.

5. Gives evidence of special care in regulation of children's wraps.

Ex: Sees that children do not wear heavy sweaters, leggings, rubbers and galoshes for extended periods in the school room. Definitely checks up on children to see that their needs are met before they go out of doors. Perhaps gives evidence of coöperation with parents in seeing that clothing provided for outdoor school period is of suitable character.

EDUCATIVE GUIDANCE IN OUT-OF-DOOR PLAY

V. *Gives children joyous and socially profitable out-of-door play every day when weather is suitable.*

1	2	3	4	5

1. Appears not to appreciate the value of children's out-of-door play.

Ex: Stays inside during the entire session in nice weather. Has no period of out-of-door play on the daily schedule.

2. Provides for out-of-door play in ways which are unsuitable.

Ex: Goes out of doors in slushy snow or rain or under other circumstances which endanger the health of the children. Fails to provide adequate substitute for out-of-door play in unsuitable weather. Is spasmodic in giving children exercise in fresh air; permits too many exceptions.

3. Methods of guiding out-of-door play at an average, neither positively efficient nor yet inefficient but lying at the mid-point between 2 and 4.

4. Goes out of doors with children and sees that they are adequately supervised from the standpoint of protection but not from that of educative experience.

Ex: Either allows children to play independently with little attention to promotion of educative experiences or organizes and directs their play to such an extent as to deny them their full right to independent thinking, and social self-control. Makes similar provision for play inside in rainy weather.

5. Displays special skill in making the period of out-of-door play a profitable one.

Ex: Sees that all children have a good time without over supervision. Shows skill in lifting spontaneous acts to a higher level. Gives children opportunity to enter into educative experiences which come to them incidentally; watching workmen at work, examining nature materials and the like. Makes substitute provision for play inside with windows open in rainy weather.

PROTECTION OF CHILDREN FROM PHYSICAL DANGER

VI. *Is diligent in protection of children from physical danger and skillful in establishing habits of caution which are free from fear.*

1	2	3	4	5

1. Disregards certain constant factors in the environment which are dangerous.

Ex: Has apparatus which is unsuited to the maturity of the children; exposed nails on the playground; open places where children might fall and the like. Appears not to know where all the children in the group are located. Frequently turns back on children whose play needs to be watched.

2. Fails to supervise children in a way which will promote habits of caution which are free from fear.

Ex: Permits chance play of a dangerous character to go on without teaching children how it may be performed with safety; or, supervises children to the extent of hampering reasonable activity. Issues continual admonitions which stimulate fear: "Be careful or you will fall." "Don't do that, you'll hurt yourself;" or, so inhibits children's activities that occasions for caution never arise.

3. Methods of protecting children from danger at an average, neither positively efficient nor yet inefficient but lying at the mid-point between 2 and 4.

4. Evidences efficiency in protection of children.

Ex: Knows where all of the children are; watches them carefully and goes to them at once in case of danger; supervises the crossing of streets and other dangerous activities; clears the environment of elements of danger; has habit of keeping her face toward the group.

5. Is herself diligent in the protection of children and displays skill in teaching children habits of caution without fear.

Ex: Teaches children habits of safety in crossing streets. Shows them how to use hammers, saws, scissors, swings, jungle gym and other apparatus. Assures children with her own poise and attitude of confidence while they are acquiring skill in useful or pleasurable activities which may involve danger.

PROMOTION OF POSTURAL HABITS AND DEVELOPMENT

VII. *Promotes desirable postural habits and development.* .

1	2	3	4	5

1. Is not alert to general practices which are conducive to poor postural development.

Ex: Permits children to sit on chairs that are too high for them. Fails to provide boxes or foot stools for dangling feet. Has periods of prolonged boring activity.

2. Gives definite posture exercises which fail to be properly effective because they bore the children or fatigue them unduly.
3. Methods of promoting postural habits at an average, neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.
4. Work well adapted to promotion of good postural development.

Ex: Freedom for activity; vigorous exercise on swings, bars or other apparatus, if available. No evidence of undue fatigue. Attention to selection of chairs of the right height or footstools for children who must sit in seats of the wrong height.

5. Displays special skill in promoting postural development.

Ex: Provides stools for children whose feet do not touch the floor or for children who cannot reach the lavatory. Is alert to factors in the play situation which contribute to children's postural development; e.g., changes a child's hold on jungle gym to one giving more desirable pull to shoulder muscles; encourages play giving exercise to specific muscles needed by individual children; encourages one child to roll over a keg; plays wheelbarrow with another.

PREVENTION OF CONTAGION

VIII. *Is diligent in prevention of contagion, and in developing habitual sanitary practices.*

1	2	3	4	5

1. Gives evidence of disregard for the prevention of contagion.

Ex: Has no period of inspection for contagious diseases on the daily program. Evidences in the school of children with colds or other symptoms. Teacher herself at school with a cold. Children observed to indulge in unsanitary practices, such as drinking from a common cup, putting mouths on the fountain, using common comb, etc.

2. Gives evidence of certain inefficient attempts at prevention of contagion.

Ex: Has inspection of children during the day's program after the children have come in contact with each other. Relegates all responsibility to physician or nurse. Fails to observe symptoms which arise during the day, lassitude, flushing, etc. Lacks tact in conducting morning inspection so that children become emotionally upset.

3. Methods of preventing contagion at an average, neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Has a well ordered system of inspection. Gives attention to desirable sanitary practice.

Ex: If no doctor or nurse is present, teacher herself, greets children and looks them over for symptoms. Is alert to sanitary aspects of each period. Makes handwashing after toilet and before eating a part of the regular routine. Sees that food is carefully handled. Sees that materials are used in sanitary way.

5. Displays a special skill in efforts to prevent contagion.

Ex: Is vigilant in every respect. Sees that children go through inspection without emotional upsets or feeling of inferiority for inadequacies. Gives definite instruction in use of fountain, handkerchief, toilet, handling of food and the like. Children are learning to turn faces aside when they cough or sneeze.

HABITS OF EATING AND ATTITUDES TOWARD FOOD

IX. *Uses effective methods of establishing good habits of eating and proper attitudes toward food.*

1	2	3	4	5

1. Appears to be oblivious of educational opportunities afforded in the luncheon period.

Ex: Leaves children alone at luncheon time. Uses the period to do odd jobs around the room. Permits some children to roam about while others eat. No social unit apparent. Or, appears to be at a loss to know how to meet difficulties related to school feeding. Permits children to bring wrong kind of lunches from home; makes no effort to re-educate children with regard to food dislikes or other undesirable habits of eating. Spaces children's eating inadequately; has mid-morning lunch directly before the mid-day meal. Does not provide opportunity for children to have water at any time during the session.

2. Uses methods poorly adapted to the children.

Ex: Insists on social formalities for which children are not ready. Nags at children and causes the meal to be one of emotional strain. Forces children to eat rather than employing methods of re-education in overcoming food dislikes. Or in an attempt to establish proper attitudes toward eating the right kind of food, questions children about what they eat at home; holds up certain children as models and in other ways runs the risk of tempting untruthful replies. Gives information which goes beyond children's understanding and gives them faulty concepts; tells children that raisins will put iron in their blood.

3. Methods of establishing habits and attitudes in relation to eating at an average, neither positively efficient nor yet inefficient, lying at the midpoint between 2 and 4.

4. Is fairly skillful in promoting a happy well regulated luncheon period in which the nature of the procedure serves as an impetus toward the formation of good eating habits.

Ex: Makes the luncheon period a happy social time. Has a routine of procedure in which children happily coöperate. Does not permit the bringing of inappropriate foods. If the luncheon time is one in which milk is served only to children in special need, sees that all children have a cup of water and cracker or some such light serving which brings them into the social situation. If mid-day meal is served at school maintains the attitude that children will eat the variety of food which is served. Quietly insists that they do so. Waits until they have finished one thing before serving another. Sees that all children have water at some time during the session.

5. Has special skill in promoting habits and attitudes with relation to food.

Ex: Makes the luncheon period attractive by artistic table setting. Promotes happy and appropriate table conversation. * Uses diplomatic

and effective methods to get child to taste new food or food which he dislikes. In a school situation where there is no need for serving a variety of foods, sees that children have some favorable experiences with such foods as vegetables, milk, eggs and cereals which they should eat, through excursions, cooking for special parties, conversation, pictures and the like. Secures coöperation from parents with regard to food of children.

HABITS OF REST AND ATTITUDES TOWARD REST PERIOD

X. *Makes adequate provision for children's rest. Makes rest period one of desirable habit formation.*

1	2	3	4	5

1. Makes no provision for relaxation during the entire session.

Ex: Children active and alert throughout the day. Evidences of fatigue.

2. Has rest period in which the children do not rest.

Ex: Children are naughty, shout, sing, wiggle, call to each other. Teacher's efforts to bring about relaxation are to no avail.

3. Methods of establishing habits and attitudes in relation to rest at an average, neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Has fairly well ordered rest period.

Ex: Effective routine of preparation for rest. Children relax during the period.

5. Teacher shows special skill in conduct of the rest period.

Ex: Children provided clean, comfortable places for rest. Children give evidence of taking responsibility for their own rest. Teacher evidences special skill in recognizing special difficulties in individual children and in meeting them. Sits by, or isolates, restless child. Takes thumbs out of mouths. Children need a minimum of admonitions and general cautions.

HABITS OF ELIMINATION AND ATTENDANT
ATTITUDESXI. *Evidences intelligent effort toward the establishment of desirable habits and attitudes toward elimination.*

1	2	3	4	5

1. Appears not to be aware of the need for regularity in elimination during the day. Disregards the educational value of establishing habits and attitudes in relation to this function.

Ex: Children's regular rhythm of elimination disregarded. Children given no opportune time for going to the toilet. Sends children to the toilet without supervision.

2. Apparent over-fixation of attention to elimination.

Ex: Children go to the toilet too often. Teacher repeatedly asks children if they need to go. Toilet period has a certain amount of strain. Children shamed if they have accidents. Too much emotional significance attached to the separation of boys and girls at the toilet.

3. Methods of establishing habits and attitudes in relation to elimination neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Well regulated and emotionally wholesome toilet period.

Ex: Evidence of a well thought out routine in practice. Teacher takes the responsibility for seeing that it is executed. Sees that children have the opportunity to go to toilet individually when necessary. Children appear not to be going too often.

5. Well worked out routine for procedure in the bathroom with evidence that children are being given responsibility for themselves according to their maturity. Emotional tone of the toilet procedure quite objective and free from false shame or overattention.

ADAPTATION AND USE OF THE SCHOOL SITUATION FOR CHILDREN'S NEED FOR EDUCA- TIVE WORK AND PLAY

SOCIAL ORGANIZATION

XII. *Provides a social organization which allows freedom for choice in activities, gives children practice in social responsibilities and helps them to recognize authority as an aid to social well-being.*

1	2	3	4	5

1. Children give evidence of being under a strain of repression or overstimulation.

Ex: Children are held to a rigid standard of quiet; are denied opportunity for social contact with each other and choice in conduct. Or, children evidence a general lack of control. They are irritated by a multiplicity of commands, by teacher's directions to "hurry", by irritation in teacher's voice. Teacher lays hands on children with impatience. Children may be over stimulated too by being forced into social coöperation for which they are not ready; group discussions, dramatizations, over responsibility for choices, and the like.

2. Teacher maintains herself on a level apart from the children.

Ex: Fails to comprehend the whole group. Singles out favored children for major attention. Does not regard children as individuals or respect them as personalities. Does not respect child's desire to continue in or change his work or play; interrupts him unnecessarily. Spells words which she does not want children to understand. Lacks optimism toward the children. Has attitude that she, herself, is always right. Inculcates respect for herself which takes away initiative from child.

3. Social organization at an average, neither positively desirable nor yet undesirable, lying at the mid-point between 2 and 4.

4. Social organization of the room is such that children work naturally and happily as individuals with a considerable amount of freedom for choice.

Ex: During major part of the day children participate spontaneously in activities. Teacher is objective and impartial in her attitude toward children. Shows skill in recognizing and meeting needs of individuals. Anticipates difficulties which might arise in socialized group and prevents the full degree of social coöperation of which children are capable.

5. Teacher shows special skill in promoting desirable social organization.

Ex: Teacher objective and impartial in her attitude but, at the same time, sympathetic and understanding. Gives children freedom for self-direction and choice in activity and guides them to wise use of this freedom. Gets maximum individual contribution and uses it for group.

SOCIAL ADJUSTMENT OF CHILDREN

XIII. *Evidences skill in promoting standards for social-moral conduct of children in the social situation.*

1	2	3	4	5

1. Promotes wrong social standards.

Ex: Promotes unwholesome rivalry; says, "Boys aren't going to let girls beat them, are they?" promises rewards; threatens punishment. Children learn to be sly and secretive. Does not check bad habits nor establish good. Children openly defiant. Administers punishments unrelated to the offense. Children fail to see meaning for their punishment. Puts too much emphasis on social approval; "We don't like children who do that."

2. Children given little practice in meeting and solving social difficulties.

Ex: Teacher insists on observance of social customs which children do not understand and for which they are not socially ready. Says, "You cannot play with us until you have told John you are sorry." Gives little practice in building up habits of control. Puts away the tricycle which children are having difficulty in sharing. Settles disputes. Says, "Mary, give that to John."

3. Social adjustment of children at an average. Methods neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Gives children practice in social behavior of a desirable sort.

Ex: Helps children develop skills which promote qualities of independence and self help. Watches children while they settle disputes for themselves. Watches while individuals adjust themselves to the group.

5. Gives evidence of special skill in discovering the level of children's development and in giving them the meaning and reason for social controls which will appeal to them on that level.

Ex: In keeping with their maturity explains to the children the reasons for certain social conduct; lets them set up their own standards. Uses a variety of appeal for the difficult child. Helps him to fit into the situation. Punishes children in relation to the motive for their conduct. Lets them decide in some cases what the punishment ought to be. Sees that satisfaction or dissatisfaction is inherent in the situation and not imposed by a person. Is skillful in helping children to see when they may exercise choice and when they must obey law.

EMOTIONAL ADJUSTMENT OF CHILDREN

XIV. *Evidences skill in promoting wholesome emotional adjustment.*

1	2	3	4	5

1. Is not alert to the fact that certain difficulties have an emotional origin and treats them otherwise.

Ex: Ridicules child for thumb sucking, crying and the like. Is unintelligent in dealing with children's fears. Shames children for masturbating. Calls undue amount of attention to masturbatory activity, thereby running the risk of causing it to develop into masturbation. Is tactless in trying to draw the shy child into activities. Condemns him by characterizing him as, "dumb", "stubborn", or "unattractive".

2. Recognizes emotional difficulties, but appears to be at a loss to know how to deal with them.

Ex: Is either over indulgent with children's emotional difficulties or fixes too much attention upon them. Evidences fear herself. Becomes flustered in the face of accidents. Recognizes the difficulties caused by children's failures, but does not know how to fit the situation to the individual children, so that they will experience success.

3. Emotional adjustment of children at an average. Methods neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.
4. Employs promising technique in dealing with emotional difficulties.

Ex: Appeals to child by making the situation and the things he might do in it enticing. Diverts attention from unpleasantness of the situation by positive suggestion. Isolates the child who has tantrums in such a way that he can come to no harm. Inspires confidence in the frightened child by giving him enough, but not too much, support to gain the feeling of confidence in his own powers. Frees the child from himself and helps him establish relations with other children. Corrects errors and still preserves the child's self-respect.

5. Teacher employs the same methods described in #4 and gives evidence, also, of basing techniques on causes which underlie behavior difficulties.

Ex: Is especially skillful in judging the abilities of individual children and so fitting the school to their needs as to avoid failure and afford normal satisfactions. Is intelligent in reconditioning children's emotional difficulties. Gives special rest period to children who need it. Seeks help from people who can give her more light on behavior problems of children.

ARRANGEMENT FOR CREATIVE WORK AND PLAY

XV. *Arranges environment so that it will be conducive to educationally constructive work and play.*

1	2	3	4	5

1. Hampers the freedom of children's work and play by cluttered or formal arrangement of the room.

Ex: Fails to utilize space which might be available inside the room or elsewhere for large constructive work, dramatic play, or physical activity. Arranges materials in such a way as to cause social mal-adjustment among children.

2. Has materials so arranged that they are inaccessible for children's self-help and choice.

Ex: Teacher gets out the exact material she thinks the children should use and gives it to them. Makes no provision for child's individual possessions; for keeping unfinished work. Evidences inconveniences of arrangement which might be avoided.

3. Arrangement for creative work at an average, neither positively convenient nor yet inconvenient, lying at the mid-point between 2 and 4.
4. Arranges room so as to promote activities of a nature suitable to the age of the children.

Ex: Children have possibility so far as arrangement is concerned to construct on a large scale and to play actively in the room or other available place in the school. Materials accessible for self-help. Arrangements made for children to keep work from day to day.

5. Arranges room conveniently as described under #4 and, at the same time, maintains an artistic unity which gives the place a charming atmosphere.

CREATIVE USE OF PLAY MATERIALS

XVI. *Guides children to constructive thinking, desirable habits and skills through creative use of tools and play materials.*

1	2	3	4	5

1. Suppresses children's natural desire for creative use of materials.

Ex: Denies children the use of materials which they might have. Or, dictates every step in the process of constructing something. Says: "Put two blocks here, now two here, and now two on top. What does that make?" Uses material limited in creative possibilities such as finely cut weaving mats, sewing cards and the like. In an effort to correlate "hand work" with other interests which are going forward, the teacher promotes the making of illustrative pieces which have little meaning or use to the child.

2. Makes technique an end in itself rather than a means to an end.

Ex: Helps children to the point of doing the most of the thinking herself in order to have a nice result. Has children color within an outline which she has prepared in order to gain practice in smooth crayoning; has them build a store which she has planned. Insists on a technique beyond the children's level. Permits individual children to specialize in one or two things which they can make skillfully rather than stimulating them to gain a variety of skills and meet a variety of problems.

3. Children's creative use of materials at an average. Methods neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.
4. Children encouraged to express themselves freely through the wise use of materials.

Ex: Plenty of opportunity for experimentation, planning, executing and judging results. Ingenuity in provision of materials such as boxes, waste materials, and things brought from home. Children work and play independently. Evidences of real child purposes directed toward supplying play needs or expressing ideas.

5. Teacher evidences special skill in raising the level of the children's performance.

Ex: Shows skill in judging the level of the individual children and appealing to them on their own level. Sees the needs of individuals while they work and goes to them with suggestions and help. Gives them enough and not too much assistance. Goes back to children and checks up on progress during the work period. Encourages children to work with a variety of materials and to express themselves in a variety of ways. Gives every opportunity for group coöperation and encourages it through the natural avenue of spontaneous play. Stimulates the use of what has been made as a check on its worth. Encourages self and group criticism according to the maturity of the children. Uses praise where it is merited and is satisfied with a crude result if it represents the child's best achievement without strain.

PROBLEM SOLVING

XVII. *Evidences skill in stimulating children in the finding and solving of problems.*

1	2	3	4	5

1. Evidences of a minimum amount of problem solving on the part of the children.

Ex: Teacher suppresses children's tendencies toward experimentation. Removes difficulties so that children will not have to meet problem. Routinizes procedure so that children have little opportunity for thinking. Makes decisions and choices herself.

2. Evidences of inappropriateness in the problems children are solving.

Ex: Teacher refers to the children's decisions things which are too difficult; problems for which they have no basis; things which possess little of interest or worth to the child. Lets child flounder a long time on some practical problem which she knows to be futile.

3. Children's practice in problem solving at an average. Methods of promoting practice in thinking neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Children meet many problems which to them are interesting and vital and they are given an opportunity to solve them.

Ex: Choice of materials which will best fit the purpose at hand; how to get what is out of reach; what to get to supply play purpose; how to improve on what has been made. Teacher leaves children to their own solution to a considerable degree.

5. Evidences special skill in stimulating children to discover and think out problems suited to their maturity in a way which is more effective than their wholly independent performance would be.

Ex: Frequently refers problem to children for their decision. Sees that problems stimulated or met are vital to the children. Is skillful in withholding decisions which children can make for themselves. Is skillful in recognition of ability of individual child to think for himself. Allows freedom for making mistakes and encourages a desirable attitude toward mistakes. Encourages right attitude toward attacking problems. Arranges situation so that problems naturally arise.

PROVISION OF AND FOR STIMULATING EXPERIENCES

XVIII. *Evidences ingenuity in provision of educative experience external to the regular school situation.*

1	2	3	4	5

1. Environment barren of evidences of broadening external experiences.

Ex: Lack of contact for children with living things, pets, growing plants, pictures, or objects relating to social life, airplanes, boats, etc. Lack of evidence of utilization of the children's natural experiences outside of school, or of opportunities which are available for supplementing them.

2. Imposes on children objects and experiences which are beyond their limited understanding or are of little relative worth.

Ex: Has displays of knights and castles, symbolical health posters and the like.

3. Children's educative experiences at an average. Methods of providing for them neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Has in the room and immediate environment a variety of things which widen the horizon of children's educative experience and in which the children appear to be interested.

Ex: Evidences of a variety of interesting materials, pets, plants, leaves, flowers, pictures, models of boats, airplanes, trains or other objects which are of vital interest to children at their level of maturity.

5. Evidences of skill on the part of the teacher in stimulating children to bring in and share educative materials, in taking children outside of the school for experiences, and in helping them to relive and interpret such experiences as they have had.

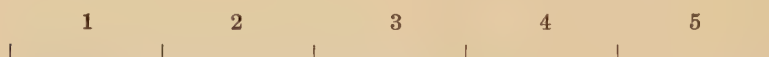
Ex: A certain consistency in relation of materials, to each other, to children's work, and to their interests and environment shows teacher guidance in use, arrangement and interpretation. Teacher herself evidences a wide background of information.

INVESTIGATION AND INTERPRETATION OF SOCIAL LIFE AND NATURE

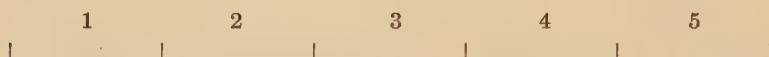
XIX-XX. *Guides children in investigation and interpretation of meanings in social life and nature.*

(Interpret both scales by explanations given below.)

Social life:



Nature:



1. Represses children's curious observation of social life and nature. Limits their interests and activities to formal environment of the classroom.

Ex: Limits children's play and experimentation to things related to the school subjects; confines their attention to the school room even when interesting and profitable processes are going on outside. Says: "No looking out of the window now. That steam shovel is no concern of ours. Music is our business now." Represses children's natural interest in discoveries with regard to sex. "No, no; that's not nice."

2. Is informative about things with which children have had insufficient experience to be able to understand.

Ex: Gives little children detailed information about how chickens hatch, where milk comes from and the like, when they have had no experience with chickens or cows. Gives information about historical events and origins when children are not familiar with their own environment and its social customs. Anticipates holidays long before they arrive.

3. Children's investigation and interpretation of social life and nature at an average. Methods of aiding them in this neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Sees that children get information about social life and nature in amount and content suited to their environment and maturity.

Ex: Seizes opportunities to enrich children's knowledge through experiences which come up in everyday life; enjoyment of snow, and other seasonal experiences, observation of workmen, investigation and discussion of objects. Supplies experiences which are related to child maturity and interests; excursions which supplement experiences and knowledge they already have. Supplements their own investigations by giving information when need and interest arises. Fits information carefully to the background of knowledge the children already have.

5. Evidences special skill in helping children to interpret their ideas.

Ex: Encourages creative play representative of social life. Gives children care of pets and plants. Sets problems such as: contributing to the school paper. Clarifies ideas through pictures, stories, models. Recognizes and uses special interest of individuals for benefit of group.

GUIDANCE OF EDUCATIVE DRAMATIC PLAY

Note: By "dramatic play" is meant the child's playful representation of experiences, real and vicarious; e.g., playing house, store, boat, train.

XXI. *Guides children to profitable use of their natural tendencies toward dramatic or representative play, which promotes social coöperation, problem solving, interpretation of experiences, and leads to further activity and expression.*

1 2 3 4 5

1. Teacher suppresses children's spontaneous dramatic play or activities which might lead to the development of organized dramatic play.

Ex: Never provides opportunity which permits of dramatic play. Has no period on the program for free experimentation and such social contact as might promote spontaneous dramatic play. Fails to see and encourage the beginnings of such play. Provides no equipment which would be suggestive of dramatic expression, or relegates into disuse material provided.

2. Misdirects children's dramatic representation.

Ex: Dictates to children what and how they are to play. Rehearses them. Insists on dramatic representation by children when they are too immature for the necessary social organization involved or when the thing dramatized is beyond their experiences and interest or is inappropriate in character. Or, evidences lack of skill in her attempts to raise standards. Breaks in on the children's spontaneous play with music and insists that the remainder of the play be carried on in rhythm; sees the children playing train with blocks and without knowing what they are doing runs across their work saying, "What a nice sidewalk."

3. Children's educative dramatic play is at an average. Methods of helping them to realization of its possibilities neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Gives children opportunity for spontaneous play and evidences skill in stimulating it in profitable direction.

Ex: Gives opportunity for spontaneous play. Sees that children have stimulating experiences. Watches beginnings of dramatic expression and sees that children have uninterrupted freedom to carry it forward.

5. Evidences special skill in stimulating and guiding dramatic play or those activities which, in the younger children, lead up to dramatic play.

Ex: Supplies a rich background of experiences so that children will have ideas and feelings to express and gives opportunity to express them. Watches the beginnings of play or the expression of ideas which give promise of development. Encourages the development of the play into profitable channels by playing with the children, asking questions, making suggestions, clarifying ideas through excursions, pictures, and discussions which appeal to children on their own level; helps them to interpret social life, solve problems, and gain social coöperation and motor skills.

ARTISTIC EXPRESSION

XXII-XXIII-XXIV-XXV.

Evidences skill in guiding children's artistic expression and appreciation.

(Score separately, but use the same explanatory statements for each scale.)

Singing :

1	2	3	4	5

Rhythmic expression :

1	2	3	4	5

Drawing and painting :

1	2	3	4	5

Literature :

1	2	3	4	5

1. Limits unduly children's artistic expression.

Ex: Directs children along other lines crowding out opportunities for expression. Or, imposes upon children a performance which is neither artistic nor expressive. Uses materials which are unsuitable in adaptation or in artistic values to children's interests and understanding; too long or complicated in composition, overtaxing abilities of children to attend or to execute; lacks basis for children's appreciation because it is unrelated to their experience; not fitted to children's ability to express; unsuited to children's natural desires for expression, such as dramatic rhythms representing growing flowers, flying birds, mosquitoes, turkeys, monkeys, and the like.

2. Directs children's artistic expression in such a way as to hamper their joyous spontaneity.

Ex: Forces children to express themselves when they lack experiences, ideas, ability or mood. Tells them just what to draw; tells them just what to do and say in dramatization; teaches poetry line by line. Fusses at children to tell what they have made; "tell a story about it," etc. Forces children to express themselves at a given time in the program.

3. Children's artistic expression at an average. Methods of promoting this neither efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Shows skill in promoting artistic expression on the child's level.

Ex: Selections of literature, music, art and art materials, childlike in appeal and artistically good. Realizes that children have ideas and feel-

ings to express and stimulates desire to express them. Sees that joy and appreciation take precedence over development of technique. Sees that space is provided so that children's impulses toward expression and enjoyment of art can be carried out; a reading table where they can be undisturbed; floor space for dancing.

5. Evidences special skill in raising the level of the child's performance without hampering joyous spontaneity and without overstimulation.

Ex: Gives an abundance of art experience. Understands the principles of art as well as the children's natures and needs. Suggests ways of improving child's performance. Gives a good model in her own performance. Stimulates need and desire for expression. Watches child's own natural tendencies to artistic expression and seizes opportunity to develop them.

LANGUAGE EXPRESSION

XXVI. *Evidences skill in stimulating and directing language expression.*

1	2	3	4	5

1. Limits the amount of practice which children get in language expression.

Ex: Suppresses conversation of children while at work. Has little or no time on the program of the day's activities for discussion. Children have little in their experience to talk about.

2. Is overexacting with the children in their speech.

Ex: Corrects children's faulty speech until they cry or cease talking from self-consciousness. Overstimulates children, as evidenced by high-pitched voices and hurried speech. Tries to get children to talk when they have nothing to express or when there is no audience situation.

3. Language expression at an average. Methods of promoting this neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Gives opportunity for much spontaneous use of language.

Ex: Children have opportunity to talk during their work. Teacher develops in them the habit of controlled speech which does not disturb others. Evidences of joyousness in expression and of ideas to express. Talks correctly to the children so that they have a good model of voice, enunciation, and grammatical construction.

5. Evidences special skill in developing children's fluency in speech without hampering joyous spontaneity.

Ex: Helps nursery school children with enunciation, names of objects, etc. Gives them plenty of experience and need for talking. Gives kindergarten and first-grade children experience in holding in mind longer and longer series of ideas by opportunity to talk before a group, by developing group compositions, letters, etc. Uses many different words to express meanings, thereby helping children to acquire a good vocabulary.

SOCIAL SKILLS (READING, WRITING, NUMBER)

XXVII. *Evidences ability to develop those activities and interests which lead to an understanding of the social skills and a gradual acquisition of them in a natural and meaningful setting.*

1	2	3	4	5

1. Evidences failure to appreciate the value of experiences which make a meaningful background for development of social skills.

Ex: General lack of broad background of experiences which give meaning to reading, writing and number. Lack of stimulus to curiosity about symbols involved in reading. No practical needs for reading in the environment, such as signs and labels. Teacher fails to use available means for giving children a realization of what it means to read. Offers little experience with books, number and size relationships, and the like.

2. Effort to give children experiences with social skills tends to yield undesirable results.

Ex: Gives children reading and number experiences for which they have no need and in which they see no meaning. Tends to build up wrong concepts or establish unfavorable attitudes toward the acquisition of reading, writing or number. Conducts foolish number games.

3. Children's experiences with relation to the social skills at an average. Methods of promoting these neither positively efficient nor yet inefficient, lying at mid-point between 2 and 4.

4. Evidences of an environment rich in experiences leading to an understanding of the meaning of the social skills.

Ex: Gives many experiences which furnish a basis for later interpretation of what is read. Has a wealth of objects and apparatus through which children acquaint themselves with number and size relationships. Has good books from which she reads to the children. Uses printed signs or other symbols to designate lockers or other personal belongings. Gives children opportunity to use blackboard and crayons.

5. Displays special skill in bringing to children's consideration those experiences which contribute directly to an interest in social skills and an understanding of them.

Ex: Accustoms children to bulletin board or other source of information; pictures which give information to the younger children, printed bulletins for the older ones. Writes stories or letters at children's dictation so that they will know what written communication means. Gives opportunities for the use of number in the solution of problems; "Choose six children to play." "How many blocks will you need?" Utilizes opportunities afforded by constructive play for giving children an understanding of the meaning of number, size, space, reading symbols, and writing.

READING

(To be scored for the reading group only)

XXVIII. *Evidences skill in teaching reading by a variety of methods by which children gain good habits and a desire for and love of reading.*

1	2	3	4	5

1. Ignores the importance of underlying bases for establishment of right reading habits.

Ex: Uses reading materials which are dull, uninteresting, or lacking in meaning to the children. Children lack purpose in reading; read for the sake of practice; struggle with phonics of individual words for the mastery of mechanics rather than for the sake of thought-getting. Fails to furnish children experiences which would give them background for rapid interpretation of meanings. Permits children to read in a halting word-by-word fashion, stopping to puzzle out words from time to time. Emotional tone of the reading period such that children are tense or bored.

2. Reading work not wholly conducive to the establishment of wrong habits, but of monotonous character.

Ex: Reading confined to the reading period and certain prescribed seat work. Teacher directs each child's turn in the same way, "And then what happened?" "Read on, John." Lack of opportunities for meaningful reading in ways incidental to the child's active life; signs, labels, materials brought from home, bulletin board, school room newspaper and the like. No chance for silent reading.

3. Methods in teaching reading neither positively efficient nor yet inefficient, lying at the mid-point between 2 and 4.

4. Gives evidence of holding right ideals in developing reading habits in children. Sees that reading materials are within children's ability and interest. Gives children experiences which furnish a background for interpretation of reading. Makes thought-getting the motive for children's efforts. Children have joyous attitude toward work.

5. Shows special skill in attaining high level of accomplishment by a variety of appeal which consistently upholds the ideals for good reading methods. Gives special attention to individual needs.

Ex: Evidences in the room and the daily program prove that children's interests in a rich environment contribute to their reading work in a variety of ways. Books and other reading material adapted to children's interests. Practice in gaining independence and skill is meaningful and interesting. Ingenious checks are available for silent reading. Work well suited to varying levels of ability of individuals. Children appear to be able to make rapid progress in reading without spending the major proportion of their time in specific practice in reading.

APPENDIX B
TABLES

TABLE XV
MEAN AND RANGE OF INDIVIDUAL SCORES ATTAINED BY 30 NURSERY SCHOOL
TEACHERS

Rater's No.	Teacher's No.	Mean Score	Range of Scores	Width of Range	Mid-point of Range	Distance of Mean from Mid-point
I	I	4.44	3.00-5.50	2.50	4.25	+.21
I	2	4.78	3.50-5.50	2.00	4.50	+.28
I	3	4.44	4.00-5.25	1.25	4.625	-.185
I	4	4.36	3.50-5.25	1.75	4.375	-.015
3	10	4.59	4.25-4.75	.50	4.50	+.09
3	11	4.55	3.75-4.75	1.00	4.25	+.30
3	12	4.54	3.75-4.75	1.00	4.25	+.29
11	39	3.47	1.00-5.50	4.50	3.25	+.22
11	40	4.66	3.00-5.50	2.50	4.25	+.41
11	41	5.20	4.50-5.50	1.00	5.00	+.20
11	42	4.78	3.25-5.50	2.25	4.375	+.405
20	73	4.73	4.00-5.50	1.50	4.75	-.02
19	71	5.31	5.00-5.50	.50	5.25	+.06
23	86	4.69	4.25-5.50	1.25	4.875	-.185
23	87	4.67	4.25-5.25	1.00	4.75	-.08
23	88	4.37	3.00-5.25	2.25	4.125	+.245
30	114	5.01	4.50-5.50	1.00	4.75	+.26
30	115	4.90	4.50-5.50	1.00	5.00	-.10
34	133	2.80	1.00-4.25	3.25	2.625	+.175
34	134	3.31	1.00-5.25	4.25	3.125	+.185
40	166	4.85	4.00-5.25	1.25	4.625	+.225
47	198	4.61	3.00-5.50	2.50	4.25	+.36
51	217	4.11	2.75-5.00	2.25	3.875	+.235
51	218	4.26	2.75-5.00	2.25	3.875	+.385
72	257	3.58	1.50-5.50	4.00	3.50	+.08
75	273	4.86	3.50-5.50	2.00	4.50	+.36
75	274	4.90	3.75-5.50	1.75	4.625	+.275
76	275	4.37	4.00-4.75	.75	4.375	-.005
76	276	4.21	3.00-5.50	2.50	4.25	-.04
76	277	4.12	2.50-4.75	2.25	4.625	-.505

Note: The whole number in each score indicates the mid-point of the inch to which it was assigned on the scale line. The decimal represents the location of the score above that point in terms of fractions of an inch. Numbers of raters and teachers in left-hand columns were arbitrarily assigned for identification purposes.

TABLE XVI

MEAN AND RANGE OF INDIVIDUAL SCORES ATTAINED BY 98 KINDERGARTEN TEACHERS

Rater's No.	Teacher's No.	Mean Score	Range of Scores	Width of Range	Mid-point of Range	Distance of Mean from Mid-point
4	16	5.32	4.75-5.50	.75	5.125	+.195
4	17	4.57	2.25-5.50	3.25	3.875	+.695
4	18	5.09	3.75-5.50	1.75	4.625	+.465
5	19	4.04	2.75-5.00	2.25	3.875	+.165
5	20	4.57	.75-5.25	4.50	3.00	+1.57
6	22	4.76	3.00-5.50	2.50	4.25	+.51
10	36	4.13	2.50-4.75	2.25	3.625	+.505
12	43	4.80	4.00-5.50	1.50	4.75	+.05
12	44	4.43	3.50-5.25	1.75	4.375	+.055
12	45	4.29	3.50-5.00	1.50	4.25	+.04
12	46	5.00	4.00-5.50	1.50	4.75	+.25
12	47	4.82	3.00-5.50	2.50	4.25	+.57
12	48	4.19	3.00-5.00	2.00	4.00	+.19
13	49	4.96	3.50-5.50	2.00	4.50	+.46
13	50	3.63	3.50-4.50	1.00	4.00	-.37
13	51	4.78	4.50-5.50	1.00	5.00	-.22
13	52	4.47	3.50-5.50	2.00	4.50	-.03
13	53	4.66	3.50-5.50	2.00	4.50	+.16
13	54	3.81	3.50-4.50	1.00	4.00	-.19
14	57	3.95	.75-5.50	4.75	3.125	+.825
14	58	2.98	1.00-4.75	3.75	2.875	+.105
14	60	3.91	1.50-5.25	3.75	3.375	+.535
19	68	2.97	1.50-3.75	2.25	2.625	+.345
19	72	5.21	4.75-5.50	.75	5.250	-.085
22	82	3.69	2.25-5.00	2.75	3.625	+.065
22	84	2.20	1.00-3.25	2.25	2.125	+.075
22	85	4.26	3.75-5.00	1.25	4.375	-.115
24	92	4.53	1.25-5.50	4.25	3.375	+1.155
24	95	5.31	4.50-5.50	1.00	5.00	+.31
24	96	4.76	4.50-5.00	.50	4.75	+.01
24	97	3.84	2.50-5.25	2.75	3.875	-.035
29	111	4.52	2.25-5.25	3.00	3.75	+.77
31	116	4.10	3.75-4.25	.50	4.00	+.10
31	117	3.94	3.75-4.75	1.00	4.25	-.31
31	118	4.06	3.25-4.50	1.25	3.875	+.185
31	119	3.43	3.25-3.75	.50	3.50	-.07
31	120	4.06	3.75-4.25	.50	4.00	+.06
32	123	4.37	2.75-5.25	2.50	4.00	+.37
32	124	3.68	1.75-5.25	3.50	3.50	+.18
32	125	4.68	2.25-5.50	3.25	3.875	+.805

TABLE XVI (Continued)

Rater's No.	Teacher's No.	Mean Score	Range of Scores	Width of Range	Mid-point of Range	Distance of Mean from Mid-point
32	128	4.84	3.25-5.25	2.00	4.25	+.59
32	129	4.17	3.00-5.25	2.25	4.125	+.045
33	130	4.31	2.75-5.25	2.50	4.00	+.31
33	131	4.30	3.00-5.50	2.50	4.25	+.05
34	135	3.68	1.00-5.25	4.25	3.125	+.555
34	136	3.59	1.00-5.00	4.00	3.00	+.59
37	150	4.83	3.75-5.50	1.75	4.625	+.205
37	151	4.20	3.50-5.50	2.00	4.50	-.30
38	155	4.59	3.25-5.50	2.25	4.375	+.215
38	156	4.67	3.50-5.25	1.75	4.375	+.295
38	157	4.18	3.25-5.25	2.00	4.25	-.07
39	158	4.73	3.75-5.50	1.75	4.625	+.105
39	159	3.56	3.00-5.00	2.00	4.00	-.44
39	160	4.63	3.25-5.25	2.00	4.25	+.38
40	164	4.56	4.00-5.00	1.00	4.50	+.06
40	165	4.00	3.00-5.00	2.00	4.00	.00
41	167	2.56	1.50-5.50	4.00	3.50	-.94
41	168	4.07	2.50-5.25	2.75	3.875	+.195
41	169	3.30	2.00-4.25	2.25	3.125	+.175
41	170	3.54	1.50-5.25	3.75	3.375	+.165
41	171	4.75	3.50-5.25	1.75	4.375	+.375
41	172	4.44	2.25-5.25	3.00	3.75	+.69
42	173	4.61	3.75-5.25	1.50	4.50	+.11
42	174	4.56	3.75-5.25	1.50	4.50	+.06
42	175	4.30	3.00-5.25	2.25	4.125	+.175
42	176	4.06	3.00-5.00	2.00	4.00	+.06
42	177	3.90	3.00-4.50	2.50	3.75	+.15
42	178	4.18	3.00-5.00	2.00	4.00	+.18
44	184	4.76	2.75-5.50	2.75	4.125	+.635
45	186	4.98	4.25-5.50	1.25	4.875	+.105
45	187	2.42	1.00-3.75	2.75	2.375	+.045
45	188	4.51	3.25-5.25	2.00	4.25	+.26
45	189	5.13	3.25-5.50	2.25	4.375	+.755
45	190	4.99	3.25-5.50	2.25	4.375	+.615
45	191	2.49	.75-4.25	3.50	2.50	+.01
45	192	2.77	1.00-3.75	2.75	2.375	+.395
45	193	2.55	1.00-3.75	2.75	2.375	+.175
45	194	4.89	3.75-5.50	1.75	4.625	+.265
46	195	4.02	2.75-4.75	2.00	3.75	+.27
46	196	3.97	3.75-4.75	1.00	4.25	+.28

TABLE XVI (Continued)

Rater's No.	Teacher's No.	Mean Score	Range of Scores	Width of Range	Mid-point of Range	Distance of Mean from Mid-point
46	197	3.65	2.50-4.75	2.25	3.625	+.025
47	199	4.25	3.00-5.50	2.50	4.25	.00
48	201	5.11	4.50-5.50	1.00	5.00	+.11
48	202	5.25	4.75-5.50	.75	5.125	+.125
48	203	4.91	4.25-5.25	1.00	4.75	+.16
48	204	5.10	4.50-5.50	1.00	5.00	+.10
48	205	4.81	4.25-5.50	1.25	4.875	-.065
48	206	4.26	3.25-5.25	2.00	4.25	+.01
72	256	3.44	1.50-4.75	3.25	3.125	+.315
53	258	1.94	1.00-4.00	3.00	2.50	-.56
53	259	2.40	1.25-3.75	2.50	2.50	-.10
53	260	1.80	1.00-4.00	3.00	2.50	-.70
53	261	2.06	.75-3.75	3.00	2.25	+.19
53	262	1.53	.75-2.25	1.50	1.50	+.03
53	263	4.38	1.25-5.00	3.75	3.125	+1.255
53	264	2.25	1.25-4.25	3.00	2.75	-.50
74	268	3.15	.75-4.25	3.50	2.50	+.65
74	269	4.93	2.75-5.25	2.50	4.00	+.93

TABLE XVII

MEAN AND RANGE OF INDIVIDUAL SCORES ATTAINED BY 103 FIRST GRADE
TEACHERS

Rater's No.	Teacher's No.	Mean Score	Range of Scores	Width of Range	Mid-point of Range	Distance of Mean from Mid-point
2	5	3.59	3.00-4.25	1.25	3.625	-.035
2	6	3.70	3.00-4.50	1.50	3.75	-.05
2	7	3.77	3.00-4.75	1.75	3.875	-.105
2	8	4.05	3.00-5.00	2.00	4.00	+.05
2	9	4.37	3.50-5.00	1.50	4.25	+.12
4	13	3.60	1.00-5.50	4.50	3.25	+.35
4	14	2.94	1.75-5.25	3.50	3.50	-.56
4	15	4.74	2.75-5.50	2.75	4.125	+.615
5	21	3.75	1.75-5.25	3.50	3.50	+.25
6	23	4.52	3.00-5.50	2.50	4.25	+.27
7	24	3.75	2.50-5.50	3.00	4.00	-.25
7	25	3.77	2.50-5.50	3.00	4.00	-.23
7	26	2.99	.75-5.50	4.75	3.125	-.135
8	27	3.44	1.75-5.00	3.25	3.375	+.065
8	28	4.38	3.00-5.50	2.50	4.25	+.13
8	29	4.05	2.25-5.50	3.25	3.875	+.175
9	30	3.41	2.00-5.00	3.00	3.50	-.09
9	31	3.79	3.00-5.00	2.00	4.00	-.21
9	32	3.89	2.00-5.00	3.00	3.50	+.39
10	33	2.96	1.50-4.75	3.25	3.125	-.165
10	34	2.56	.75-3.75	3.00	2.25	+.31
10	35	3.39	1.50-4.75	3.25	3.125	+.265
10	37	3.27	1.50-4.75	3.25	3.125	+.145
10	38	2.54	.75-3.75	3.00	2.25	+.29
16	64	3.63	2.75-4.75	2.00	3.75	-.12
17	65	3.84	2.75-5.50	2.75	4.125	-.285
18	66	4.36	3.00-5.25	2.25	4.125	+.235
18	67	3.00	2.00-4.00	2.00	3.00	.00
21	74	4.14	3.25-4.75	1.50	4.00	+.14
21	75	4.46	3.25-4.75	1.50	4.00	+.46
21	76	4.47	3.25-5.00	1.75	4.125	+.345
21	77	3.70	3.25-4.75	1.50	4.00	-.30
21	78	4.18	3.50-4.75	1.25	4.125	+.055
21	79	4.62	4.00-5.00	1.00	4.50	+.12
19	69	5.02	4.75-5.50	.75	5.125	-.105
19	70	5.15	4.75-5.50	.75	5.125	+.025
22	80	4.69	4.00-5.25	1.25	4.625	+.065
22	81	4.56	3.75-5.00	1.25	4.375	+.185
22	83	2.98	1.25-3.75	2.50	2.50	+.48
24	89	4.30	3.50-5.50	2.00	4.50	-.20

TABLE XVII (Continued)

Rater's No.	Teacher's No.	Mean Score	Range of Scores	Width of Range	Mid-point of Range	Distance of Mean from Mid-point
24	90	4.63	3.00-5.50	2.50	4.25	+.38
24	91	3.85	2.50-4.75	2.25	3.625	+.225
24	93	4.40	2.75-5.50	2.75	4.125	+.275
24	94	2.72	.75-5.50	4.75	3.125	-.405
25	98	4.73	3.00-5.25	2.25	4.125	+.605
25	99	4.90	4.00-5.25	1.25	4.625	+.275
25	100	4.51	3.50-5.25	1.75	4.375	+.135
25	101	4.01	3.00-5.00	2.00	4.00	+.01
25	102	4.19	3.00-5.00	2.00	4.00	+.19
25	103	4.19	3.00-5.25	2.25	4.125	+.065
26	104	4.02	2.75-5.25	2.50	4.00	+.02
26	105	3.83	1.75-5.25	3.50	3.50	+.33
26	106	3.42	1.75-5.25	3.50	3.50	-.08
29	109	4.38	1.50-5.50	4.00	3.50	+.88
29	110	3.56	1.50-5.50	4.00	3.50	+.06
29	112	4.14	1.50-5.25	3.75	3.375	+.765
29	113	3.59	1.50-5.00	3.50	3.25	+.34
32	121	4.57	3.75-5.25	1.50	4.50	+.07
32	122	3.20	1.00-4.25	3.25	2.625	+.575
32	126	3.43	2.75-4.50	1.75	3.625	-.195
32	127	3.81	2.00-5.25	3.25	3.625	+.185
33	132	4.87	2.50-5.50	3.00	4.00	+.87
34	137	3.68	1.00-5.00	4.00	3.00	+.68
34	138	3.79	1.00-5.25	4.25	3.125	+.665
35	139	3.73	2.75-4.50	1.75	3.625	+.105
36	142	3.20	2.50-4.50	2.00	3.50	-.30
36	143	4.37	3.25-5.25	2.00	4.25	+.12
36	144	4.16	3.00-5.25	2.25	4.125	+.035
36	145	3.05	1.50-5.50	4.00	3.50	-.45
36	146	4.19	3.50-5.50	2.00	4.50	-.31
36	147	4.61	2.50-5.25	2.75	3.875	+.735
37	148	3.70	2.25-4.75	2.50	3.50	+.20
37	149	3.81	1.75-5.00	3.25	3.375	+.435
38	152	3.97	.75-5.25	4.50	3.00	+.97
38	153	5.30	4.75-5.50	.75	5.125	+.175
39	161	2.83	2.00-3.75	1.75	2.875	-.045
39	162	5.03	4.00-5.50	1.50	4.75	+.28
39	163	5.37	4.50-5.50	1.00	5.00	+.37
43	179	4.82	4.25-5.50	1.25	4.875	-.055
43	180	3.55	2.50-4.50	2.00	3.50	+.05

TABLE XVII (Continued)

Rater's No.	Teacher's No.	Mean Score	Range of Scores	Width of Range	Mid-point of Range	Distance of Mean from Mid-point
43	181	4.75	4.00-5.25	1.25	4.625	+ .125
43	182	3.45	2.25-4.75	2.50	3.50	- .05
43	183	4.67	4.00-5.25	1.25	4.625	+ .045
44	185	4.09	1.25-5.25	4.00	3.25	+ .84
47	200	3.56	2.75-4.75	2.00	3.75	- .19
49	207	3.85	2.00-5.00	3.00	3.50	+ .35
49	208	4.18	2.00-5.25	3.25	3.625	+ .555
49	209	3.43	2.00-4.75	2.75	3.375	+ .055
50	210	4.57	1.50-5.50	4.00	3.50	+1.07
50	211	5.31	2.50-5.50	3.00	4.00	+1.31
50	212	4.13	3.25-5.25	2.00	4.25	- .12
50	213	3.44	1.25-4.75	3.50	3.00	+ .44
50	214	4.02	2.75-5.50	2.75	4.125	- .105
50	215	4.20	2.75-5.50	2.75	4.125	+ .075
51	216	3.97	1.75-5.00	3.25	3.375	+ .595
35	139	3.73	2.75-4.50	1.75	3.625	+ .105
59	238	4.44	3.50-5.00	1.50	4.25	+ .19
59	239	3.64	2.25-4.75	2.50	3.50	+ .14
59	240	3.70	3.00-4.50	1.50	3.75	- .05
59	241	4.77	4.00-5.25	1.25	3.625	+ .145
59	242	4.00	1.50-5.00	3.50	3.25	+ .75
59	243	3.73	3.00-4.75	1.75	3.875	- .145
74	272	4.94	4.00-5.25	1.25	4.625	+ .315

APPENDIX C
BIBLIOGRAPHY

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